

RECLAMATION

Managing Water in the West

Draft Environmental Assessment

Environmental Assessment for the 2008 Renewal of Interim Water Service Contracts through February 28, 2010

EA-07-75



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List of Acronyms, Abbreviations and Definition of Terms

AEWSD	Arvin Edison Water Storage District
af	acre-feet (the volume of water one foot deep and an acre in area)
af/y	acre-feet per year
Ag	agricultural
APE	Area of potential effect
Barcellos	Barcellos Judgment
BCID	Banta Carbona Irrigation District
BMP	Basin Management Plan
BO	Biological Opinion
CDFG	California Department of Fish and Game
CDPR	California Department of Parks and Recreation
CDMWC	Colusa Drain Mutual Water Company
CEC	Categorical Exclusion Checklist
CESA	California Endangered Species Act
CEQA	California Environmental Quality Act
CFR	Code of Federal Regulations
CRHR	California Registry of Historic Resources
CSA	County Service Area
CV Contractor	Cross Valley Contractor
CVC	Cross Valley Canal
CVHMP	Central Valley Habitat Monitoring Program
CVP	Central Valley Project
CVPIA	Central Valley Project Improvement Act
DD#1	Distribution District #1
DD#2	Distribution District #2
Delta	Sacramento/San Joaquin Rivers Delta
Devine and Wood	Landowners in both MSWD and WWD that requested the MSWD partial assignment to WWD DD#2
DMC	Delta Mendota Canal
DOI	Department of the Interior
DWR	California Department of Water Resources
EA	Environmental Assessment
EIR	Environmental Impact Report
EIS	Environmental Impact Statement
ESA	Endangered Species Act
FKC	Friant-Kern Canal
FONSI	Finding of No Significant Impact
FWCA	Fish & Wildlife Coordination Act
FWS	Fish and Wildlife Service
GMP	Groundwater Management Plan
HVID	Hill's Valley Irrigation District
IRC	Interim Renewal Contract
ID	Irrigation District
ITA	Indian Trust Assets

JJWTP	John Jones Water Treatment Plant
KTWD	Kern-Tulare Water District
KTRG	Kern-Tulare and Rag Gulch Water Districts
LTRID	Lower Tule River Irrigation District
MG	Million gallons
M&I	Municipal and Industrial
MOU	Memorandum of Understanding
MSWD	Mercy Springs Water District
NDDDB	Natural Diversity Database
NEPA	National Environmental Policy Act
NHPS	National Historic Preservation Act
NMFS	National Marine Fisheries Service
NOAA	National Oceanic and Atmospheric Administration
NRHP	National Registry of Historic Places
OCAP	Operating Criteria and Plan
PDA's	Public Domain Allotments
PEIS	Programmatic Environmental Impact Statement
PUD	Public Utility District
PVWMA	Pajaro Valley Water Management Agency
PWR	Pixley Wildlife Refuge
PXID	Pixley Irrigation District
RGWD	Rag Gulch Water District
Reclamation	Bureau of Reclamation
ROD	Record of Decision
ROW	Right of Way
SCVWD	Santa Clara Valley Water District
SHPO	State Historic Preservation Officer
SLC	San Luis Canal
SOD	South of Delta
SRSC	Sacramento River Settlement Contracts
SWP	State Water Project
Three Way Contract	Pajaro Valley Water Management Agency, Westlands Water District (District #1), Santa Clara Valley Water District
Tracy	City of Tracy
TVID	Tri-Valley Water District
US	United States
WSID	The Westside Irrigation District
WTP	Water Treatment Plant
WWD	Westlands Water District

Section 1.0 Purpose and Need for Action

1.1 Introduction

On October 30, 1992, the President signed into law the Reclamation Projects Authorization and Adjustment Act of 1992 (Public Law 102-575) that included Title 34, the Central Valley Project Improvement Act (CVPIA). In accordance with Section 3404(c) of the CVPIA, the Bureau of Reclamation (Reclamation) proposes to execute 15 interim water service contracts beginning March 1, 2008. Interim renewal contracts (IRCs) are undertaken under the authority of the CVPIA to provide a bridge between the expiration of the original long-term water service contract and the execution of a new long-term water service contract. The 15 water service contracts proposed for interim renewal in 2008 are listed in Table 1. These 15 interim contracts would be renewed for a two-year period from March 1, 2008 through February 28, 2010. In the event a new long-term water service contract is executed, the interim water service contract then-in-effect would be superseded by the long-term water service contract.

Reclamation has prepared this Environmental Assessment (EA) to determine the environmental effect of any actions resulting from the execution of these 15 interim contracts for up to two years (March 1, 2008 through February 28, 2010.) Previous interim renewal EAs and supplements have been prepared and approved as follows:

- the 1994 Interim Renewal Contracts EA (Reclamation 1994) which covered the contract years 1994 through 1997,
- the 1998 Supplemental EA (Reclamation 1998) which covered the contract years 1998 and 1999,
- the 2000 Supplemental EA (Reclamation 2000) which covered the contract year 2000,
- the 2001 Supplemental EA (Reclamation 2001) which covered the contract year 2001,
- the 2002 Supplemental EA (Reclamation 2002) which covered the contract years 2002 and 2003,
- the 2004 Supplemental EA (Reclamation 2004) which covered the contract years 2004 and 2005, and
- the 2006 Supplemental EA (Reclamation 2006) which covered the years 2006 and 2007.

These seven previous documents are incorporated by reference into this analysis. The 2006, 2004, 2002, 2001, and 2000 IRC Supplemental EAs are included in Appendix A. Due to the lengthiness of the documents, the December 1994 EA, and February 1998 Supplemental EA are available by request.

This 2008 EA will summarize and update, as needed, information from the 2006, 2004, 2002, 2001 or 2000 Final Supplemental EAs. This EA was developed consistent with regulations and

guidance from the Council on Environmental Quality, and in conformance with the analysis provided in *NRDC v. Patterson*, Civ. No. S-88-1658 (*Patterson*). In *Patterson* the Court found that “...[on] going projects and activities require NEPA [National Environmental Policy Act] procedures only when they undergo changes amounting in themselves to further ‘major action’.” In addition, the court went further to state that the NEPA statutory requirement applies only to those changes. The analysis in this 2008 EA and the incorporated EAs finds in large part that the interim renewal of the contracts is in essence a continuation of the “status quo,” that is, they continue the existing use and allocation of resources (i.e., the same amount of water is being provided to the same lands for existing/ongoing purposes).

Section 3409 of the CVPIA required that Reclamation must prepare a programmatic environmental impact statement (PEIS) before renewing long-term Central Valley Project (CVP) water service contracts. The PEIS analyzed the implementation of all aspects of CVPIA, contract renewal being one of many programs addressed by this Act. CVPIA Section 3404(c) mandated that upon request all CVP existing contracts be renewed. Implementation of other sections of CVPIA mandated actions and programs that require modification of previous contract articles or new contract articles to be inserted into renewed contracts. These programs include water measurement requirements (Section 3405(b)), water pricing actions (Section 3405(d)), and water conservation (Section 3405(e)). The PEIS did not analyze site specific impacts of contract renewal.

The PEIS evaluated different alternatives of implementing CVPIA’s requirements. On January 9, 2001, the Record of Decision (ROD) was signed approving the implementation of the Preferred Alternative from the Final PEIS, with a few delineated differences, (none of which relate to contract renewal). For the purposes of contract renewal, this was considered basic implementation of the CVPIA. An interim renewal contract form was developed in 1997 (prior to approval of the ROD), which incorporated the concepts of the Preferred Alternative. This interim renewal contract form is the basis for the No Action Alternative within this document.

The analysis in the PEIS as it relates to the implementation of CVPIA through contract renewal and the environmental impacts of implementation of the PEIS preferred alternative are foundational to this document. The PEIS has analyzed the differences in the environmental conditions between existing contract requirements (signed prior to CVPIA) and the No Action Alternative which is reflective of minimum implementation of CVPIA. This document will focus on the environmental impacts of implementation of the two forms of contracts described in the Alternatives Section.

1.1.1 Background of Long-Term and Interim Renewal Contracts

As stated earlier, Sections 3404(c) and 3409 of the CVPIA stipulate that Reclamation must prepare a PEIS analyzing the direct and indirect impacts and benefits of implementing the

CVPIA before renewing long-term CVP water service contracts. The complexity of the analysis associated with the CVPIA PEIS extended its completion until October 1999, with a ROD approved on January 9, 2001.

The PEIS evaluated CVP-wide impacts of long-term contract renewal. As contract renewal negotiations were completed, Reclamation prepared environmental documents that tiered from the PEIS to analyze the local effects of long-term contract renewals at the division, unit, or facility level:

Reclamation completed long-term contract renewal environmental documentation in early 2001 for CVP contracts in the Friant Division, Hidden Unit, and Buchanan Unit of the CVP (Reclamation 2000, 2001b). Twenty-five of the 28 Friant Division long-term contracts were executed between January and February 2001, and the Hidden Unit and Buchanan Unit long-term contracts were executed in February 2001. The Friant Division long-term contracts with the City of Lindsay, Lewis Creek Water District, and City of Fresno were executed in 2005.

A final environmental impact statement (EIS) analyzing effects of the long-term renewal of the Sacramento River Settlement Contracts (SRSC) and the Colusa Drain Mutual Water Company (CDMWC) was completed in December 2004 (Reclamation 2004b). The 147 SRSCs were executed in 2005, and the CDMWC contract was executed on May 27, 2005. A revised EA for the long-term renewal of the Feather Water District water-service replacement contract was completed August 15, 2005 (Reclamation 2005), and the long-term contract was executed on September 27, 2005.

Environmental documents were completed by Reclamation in February 2005 for the long-term renewal of CVP contracts in the Shasta Division and Trinity River Divisions (Reclamation 2005b), the Black Butte Unit, Corning Canal Unit, and the Tehama-Colusa Canal Unit of the Sacramento River Division (Reclamation 2005c). All long-term CVP contracts for the Shasta, Trinity and Sacramento River Divisions were executed between February and May 2005.

Within the Delta Division, Reclamation completed long-term environmental documents for the Delta-Mendota Canal Unit (Reclamation 2005d), U.S. Department of Veteran Affairs (Reclamation 2005e), and the Contra Costa Water District (Reclamation 2005f), and executed 17 Delta Division long-term renewal contracts in early 2005. Three contractors in the Delta-Mendota Canal Unit have not yet executed a long-term renewal contract, and their respective existing interim contracts expire February 29, 2008. Reclamation is pursuing execution of these remaining long-term water service contract renewals within this interim period (March 1, 2008 to February 28, 2010).

Within the American River Division, Reclamation completed long-term environmental documents for the majority of the division. The American River long-term contract renewal EIS ROD was executed for five of the seven contractors. (Although the American River Division has eight contractors, one is a water rights contract with no expiration and is not part of the contract renewal process.) Reclamation has executed contracts with four of the five contractors covered by the ROD. The two of the three not covered by the ROD are still undergoing ESA consultation and awaiting the completion of a BO. The current contracts for the American River Division contractors that have not yet executed a long-term renewal contract expire in 2011. Reclamation is pursuing execution of these remaining long-term water service contract renewals within this interim period (March 1, 2008 to February 28, 2010).

Cross Valley Contractors (CV Contractors) and San Luis Unit long-term environmental documentation and contract renewal is pending. Reclamation is pursuing completion of environmental compliance and execution of these remaining long-term water service contracts within the analysis period of this EA (March 1, 2008 to February 28, 2010.)

On March 28, 2007, the San Felipe Unit existing contracts were amended to incorporate some of the CVPIA requirements; however, the long-term renewal contracts for this division were not executed. The San Felipe Division contracts expire December 31, 2027. Reclamation continues to work on long term contract renewal environmental documentation for the San Felipe Unit as well.

In the late fall of 2007 due to the fact that the existing San Luis Unit contracts expire between December 2007 and December 2008, with one in February 2024, an interim renewal contract EA, entitled *San Luis Unit Water Service Interim Renewal Contracts – 2008 – 2011* (EA# 07-56)(Reclamation 2007), was written and separate Finding of No Significant Impacts (FONSI) will be signed beginning in December 2007. The first interim contracts for five of the seven San Luis Unit expiring contracts to be signed will be: Westlands Water District (WWD), City of Avenal, City of Huron, City of Coalinga, and Department of Fish and Game (CDFG.) The other two San Luis Unit contracts, which expire in December 2008, (Panoche Water District and San Luis Water District) are pending completion of ESA consultation and the signing of the remaining two FONSI.

1.2 Purpose and Need

The purpose of the Proposed Action is to execute 15 interim contracts to extend the term of the contractors' existing interim renewal contract(s) for two years, beginning March 1, 2008 and ending February 28, 2010. Execution of these 15 interim contracts is needed to continue delivery of CVP water to these contractors until their new long-term contract can be executed.

IRCs are needed to provide the mechanism for the continued beneficial use of the water developed and managed by the CVP and for the continued reimbursement to the federal government for costs related to the construction and operation of the CVP by the 15 contractors. Additionally, CVP water is essential to continue agricultural production and municipal viability for these contractors.

1.3 Public Involvement

The public is invited to review and comment on the Draft Supplemental EA and Draft FONSI for the 2008 Renewal of Interim Water Service Contracts through February 28, 2010 for a 30-day review period that begins on December 27, 2007. A press release announcing the Draft EA/FONSI publication was sent to all interested parties, and the Draft EA/FONSI was made available for viewing on Reclamation's Mid-Pacific Region webpage.

Public participation requirements for water service, repayment, and other water-related contracts are established in Section 9(f) of the Reclamation Project Act of 1939, 43 U.S.C. 485h, and by Reclamation Reform Act rules and regulation (43 CFR 426.22). Public participation procedures are composed of two basic elements: 1) publicize proposed contract actions, and 2) provide an opportunity for public comment. Negotiations have been completed for the draft form of the 2008 interim renewal contracts, and all proposed 2008 interim contracts are proposed to have a term of two years. Reclamation invited the public to the negotiations of the draft form of the interim renewal contract, and Reclamation made available to the public documents discussed during the negotiations. Negotiations have been completed for the draft form of the 2008/09 IRCs. Reclamation provides public notices of proposed contract actions at least 60 days prior to execution of any contract with a term greater than 1 year. The 2008 IRCs were posted for 60 day public comment on December 13, 2007 at website http://www.usbr.gov/mp/cvpia/3404c/lt_contracts/index.html.

1.4 Scope

This EA has been prepared to examine the impacts on environmental resources as a result of delivering water to 15 contractors under the proposed IRCs. The water would be delivered for agricultural or municipal and industrial (M&I) purposes within Reclamation's existing water

right place of use. The water would be delivered within the current contractor service area boundaries using existing facilities for a period of up to two years.

1.4.1 Contract Service Areas

No changes to any contractor's service area are part of the Proposed Action. However, Reclamation anticipates completion of a boundary modification for the County of Fresno to include a previously graded tract (Tract 4870) into the service area so that development could commence. NEPA analysis was done for this as a separate action (Categorical Exclusion Checklist (CEC # 07-132.) Full ESA compliance has been accomplished for this boundary modification through the developer's purchase of mitigation lands.

Any request by an interim contractor to change its existing service area would be a separate federal action. Separate appropriate environmental compliance and documentation would be completed before Reclamation approves a land inclusion or exclusion to any CVP contractor's service area.

1.4.2 Purpose of Use

Use of contract water for agricultural irrigation use or M&I use under the proposed IRCs would not change from the purpose of use specified in the existing contracts. However, the amount and types of crops planted will vary according to the annual water allocation and farming practices, and a small quantity of irrigation use may be changed to M&I purposes where the existing contract and governing laws and regulations allow.

1.4.3 Water Transfers and Exchanges

No sales, transfers, or exchanges of CVP water are part of the Proposed Action. Water sales, transfers, and exchanges are separate actions and are independent of IRC execution. Pursuant to Section 3405 of the CVPIA, transfers of CVP water require appropriate site-specific environmental compliance and documentation. Appropriate site-specific environmental documentation is also prepared for all CVP water exchange actions.

1.4.4 Water Assignments or District Mergers

Assignments of CVP water are not included in the Proposed Action. Any changes in CVP contract assignments are separate, independent actions that require their own environmental compliance and documentation. Five interim contractors have previously obtained assignments or partial assignments of CVP water (see Table 1). The direct, indirect, and cumulative effects of these assignment actions were analyzed in previous environmental documents (Reclamation 1999, 2002b, 2003, 2003b, 2004d, 2005g).

District mergers or consolidations are also not included in the Proposed Action. During the period of these proposed IRCs it is likely that Kern-Tulare and Rag Gulch Water Districts

(KTRG) will combine into one district and request the combining of the two water service contracts. This action will be environmentally analyzed under separate environmental documentation.

1.4.5 Warren Act Contracts

Warren Act contracts between Reclamation and water contractors for the conveyance of non-federal water through federal facilities or for the storage of non-federal water in federal facilities are not included in the Proposed Action. KTRG routinely executes Warren Act contracts with Reclamation under separate environmental documentation. Most recently Reclamation executed a one year 2007 Warren Act with KTRG which was analyzed in EA 07-18 *Contract for Conveyance of Non-Project Water for KTWD and RGWD* (Reclamation 2007b). This EA determined that there was no affect of the proposed one year Warren Act contract. The FONSI was signed March 20, 2007. KTRG has requested a Warren Act contract for 2008 and is pursuing a long term Warren Act contract.

1.4.6 Article 55 Conveyances

Conveyance of non-federal water under Article 55 of a State Water Project (SWP) contractor's supply contract is not a federal action, and no Article 55 conveyance actions are included in the Proposed Action.

1.4.7 Municipal and Industrial Water Shortage Policy

Reclamation has completed environmental documentation for the Central Valley Project's Municipal and Industrial Water Shortage Policy (M&I Shortage Policy) (Reclamation 2005h). The purposes of the M&I shortage policy include: 1) define water shortage terms and conditions applicable to all CVP M&I contractors, 2) establish a minimum water supply level that (a) would sustain urban areas during droughts, and (b) during severe or continuing droughts would, as much as possible, protect public health and safety. The M&I water shortage policy will be incorporated into long-term water service contracts during the long-term contract renewal process being implemented under the CVPIA. The proposed 2008 interim renewal contracts would not change the existing contract terms and conditions governing the allocation of project water during a drought emergency. The existing contract terms regarding shortage allocations are in accordance with the June 9, 1997 CVPIA Administrative Proposal on Urban Water Supply.

Although the contracts contain provisions consistent with the M&I Shortage Policy, the effect of the policy on these 15 IRCs is limited. The M&I Shortage Policy does not apply to the CV Contractors and, as the contract assignments are from contractors with little or no historic M&I use, the water provided to the new assignors does not have M&I reliability.

1.4.8 Pajaro Valley Water Management Agency

The Pajaro Valley Water Management Agency (PVWMA) was assigned a portion of the CVP contract held by the Mercy Springs Water District (MSWD) (Contract # 14-06-200-3365A-IR9-B shown in Table 1 below) which is one of the IRCs considered in this EA. Due to the lack of conveyance facilities from San Luis Reservoir into Pajaro Valley, this water cannot be delivered to Pajaro Valley, until further technical and environmental documentation are completed. As the water will not be deliverable to PVWMA during the two years considered within this document, water delivery to PVWMA's service area will not be analyzed within this EA.

1.5 Potential Impacted Resource Areas

Consistent with previous CVP interim renewal contract EAs including the *1994 Interim Renewal Contracts* EA for 67 contractors and the 1998, 2000, 2002, 2004, and 2006 supplemental EAs, this 2008 EA considers the potential effects of these 15 interim renewal contracts on the following resources:

- Water Resources
 - Surface Water
 - Groundwater
- Land Use
- Biological Resources
- Cultural Resources
- Recreational Resources
- Indian Trust Assets
- Socioeconomic Resources
- Environmental Justice

Table 1. Central Valley Project 2008 Interim Renewal Contractors

CVP Contractor	Contract Quantity (A/F)	Contract Purpose of Use	Water Shortage Reliability	Existing IRC Contract No.	Contract Expiration Date	2008 IRC Contract No.
DELTA DIVISION						
Delta-Mendota-Canal Unit:						
Tracy, City of (assignment final 27 Feb 04)	5,000	Ag/M&I	Ag	14-06-200-4305A-IR9-B (partial assign from Banta Carbona ID)	2/29/2008	14-06-200-4305A-IR10-B (partial assign from Banta Carbona ID)
Tracy, City of (assignment final 27 Feb 04)	2,500	Ag/M&I	Ag	7-07-20-W0045-IR9-B (partial assign from the West Side ID)	2/29/2008	7-07-20-W0045-IR10-B (partial assign from the West Side ID)
Westlands Water District (District #1)* (assignment final 9 Nov 04)	2,500	Ag/M&I	Ag	7-07-20-W0055-IR9 (assign. From Centinella WD)	2/29/2008	7-07-20-W0055-IR10 (assign. From Centinella WD)
Westlands Water District (District #1)* (assignment final 27 May 05)	2,990	Ag/M&I	Ag	14-06-200-8018-IR9 (assign. From Widren WD)	2/29/2008	14-06-200-8018-IR10 (assign. From Widren WD)
Westlands Water District (District #2)* (assignment final 1 Mar 03)	4,198	Ag/M&I	Ag	14-06-200-3365A-IR9-C (partial assign. From Mercy Springs WD)	2/29/2008	14-06-200-3365A-IR10-C (partial assign. From Mercy Springs WD)
Westlands Water District (District #1)* (assignment final xx/xx/xxx)	27,000	Ag/M&I		14-06-200-8092-IR9 (assign. From Broadview WD)	2/29/2008	14-06-200-8092-IR10
Pajaro Valley Water Mangement Agency, Westlands Water District (District #1), Santa Clara Valley Water District (3-way assignment final 14 May 99)	6,260	Ag/M&I		14-06-200-3365A-IR9-B (3-way assignment from Mercy Springs: see Reclamation 1999 and 2004c)	2/29/2008	14-06-200-3365A-IR10-B (3-way assignment from Mercy Springs: see Reclamation 1999 and 2004c)

CVP Contractor	Contract Quantity (A/F)	Contract Purpose of Use	Water Shortage Reliability	Existing IRC Contract No.	Contract Expiration Date	2008 IRC Contract No.
Cross Valley Contractors:						
Fresno, County of	3,000	Ag/M&I	Ag	14-06-200-8292A-IR11	2/29/2008	14-06-200-8292A-IR12
Hills Valley Irrigation District	3,346	Ag/M&I	Ag	14-06-200-8466A-IR11	2/29/2008	14-06-200-8466A-IR12
Kern-Tulare Water District	40,000	Ag/M&I	Ag	14-06-200-8601A-IR11	2/29/2008	14-06-200-8601A-IR12
Lower Tule River Irrigation District	31,102	Ag/M&I	Ag	14-06-200-8237A-IR11	2/29/2008	14-06-200-8237A-IR12
Pixley Irrigation District	31,102	Ag/M&I	Ag	14-06-200-8238A-IR11	2/29/2008	14-06-200-8238A-IR12
Rag Gulch Water District	13,300	Ag/M&I	Ag	14-06-200-8367A-IR11	2/29/2008	14-06-200-8367A-IR12
Tri-Valley Water District	1,142	Ag/M&I	Ag	14-06-200-8565A-IR11	2/29/2008	14-06-200-8565A-IR12
Tulare, County of	5,308	Ag/M&I	Ag	14-06-200-8293A-IR11	2/29/2008	14-06-200-8293A-IR12
Total	173,440					

Section 2.0 Alternatives Including Proposed Action

2.1 Alternative A – No Action

The No Action Alternative evaluated in this document is the execution of up to 15 interim renewal water service contracts between the United States and the CVP contractors listed in Table 1 with terms and conditions modeled after the Preferred Alternative of the CVPIA PEIS (Reclamation and FWS 1999) adapted to apply for an interim period. Therefore, the No Action Alternative is the continued delivery of CVP water under the IRCs which includes terms and conditions required by non-discretionary CVPIA provisions for long-term contracts.

The CVPIA PEIS Preferred Alternative assumed that most contract provisions would be similar to many of the provisions in the 1997 CVP Interim Renewal Contracts, which included contract terms and conditions consistent with applicable CVPIA requirements. The only CVPIA provision which was incorporated into the Preferred Alternative of the Final PEIS and included in the No Action Alternative but has not been incorporated into the previous interim renewal contracts for the 15 contractors is tiered water pricing.

The CVPIA required the implementation of a tiered water pricing component for contracts with terms longer than three years. The tiered pricing component is the incremental amount to be paid for each acre-foot of water delivered. The tiered pricing component for the amount of water delivered up to 80 percent of the contract total shall not be less than the established rates/charges determined annually by the Contracting Officer in accordance with the then-current applicable Reclamation water rate-setting policies for the contractor. The tiered pricing component for the amount of water delivered in excess of 80 percent of the contract total, but less than or equal to 90 percent of the contract total, shall equal one-half of the difference between the rate/charges established for the contractor and the M&I full cost rate. The tiered pricing component for the amount of water that exceeds 90 percent of the contract total shall equal the difference between (1) the rates/charges and (2) the applicable cost water rate. This is described as the 80/10/10 pricing structure. (80/10/10)

2.2 Alternative B - Proposed Action

The Proposed Action alternative evaluated in this document is the execution of up to 15 interim renewal water service contracts between the United States and the CVP contractors listed in Table 1. (These contracts are the same 15 included in the No Action Alternative.) The existing IRCs listed on Table 1 expire February 29, 2008. All of these 15 contracts have existing IRCs and all have had several IRCs executed prior to their existing IRC. The CV Contractors are currently in their eleventh IRC and the proposed renewal would be the twelfth. The Proposed Action would continue these existing IRCs, with only minor, administrative changes to the contract provisions to update the previous IRCs for the new contract period. In the event that a new long-term water contract is executed, that IRC would then expire.

No changes to any of the 15 CVP contractor service areas or water deliveries are part of the Proposed Action. CVP water deliveries under the 15 proposed IRCs can only be used within each designated contract service area (see Appendix B for service area maps). Contract service areas for the proposed IRCs have not changed from the existing IRCs except in the case of the County of Fresno. (See Section 1.4.1 above for further explanation.).

The proposed 2008 interim renewal contract quantities (see Table 1) remain the same as in the existing IRCs. Water can be delivered under the IRCs in quantities up to the contract total, although it is likely that deliveries will be less than the contract total. The existing interim contracts can be viewed on-line at www.usbr.gov/mp/cvpia/3404c/lt_contracts/index.html (click on “2006 Interim Renewal Contracts” or “2007 Interim Renewal Contracts” as appropriate – CV Contractor IRCs were executed in 2007 and the other seven were executed in 2006.), and a sample proposed 2008 IRC is provided in Appendix C of this document. The terms and conditions of the 2008 IRCs are incorporated by reference into the Proposed Action.

The primary difference between the Proposed Action and the No Action Alternative is that the Proposed Action does not include tiered pricing. Section 3405(d) of the CVPIA does not require tiered pricing to be included in contracts of 3 years or less in duration. Therefore, if during the term of the IRCs at least 80 percent of the contract total is delivered in any year, no incremental charges for water will be collected and paid to the Restoration Fund that year as would have happened under tiered pricing.

Table 2 below provides a comparison of many of the terms and conditions of: 1) the No Action Alternative and 2) the Proposed Action.

Table 2
Comparison of Contract Provisions

Interim Renewal Contract Provision	No Action Alternative Based on PEIS Preferred Alternative	Proposed Action – Negotiated Contract
Explanatory Recitals	<p>Assumes water rights held by CVP from the State Board for use by water service contractors under CVP policies</p> <p>Assumes that CVP is a significant part of the urban and agricultural water supply of users</p> <p>Assumes increased use of water rights, need to meet water quality standards and fish protection measures, and other measures constrained use of CVP</p> <p>Assumes the need for the 3408(j) study</p> <p>Assumes that loss of water supply reliability would have impact on socioeconomic conditions and change land use</p>	<p>Same as No Action Alternative</p> <p>Same as No Action Alternative</p> <p>Same as No Action Alternative</p> <p>Same as No Action Alternative</p> <p>Same as No Action Alternative</p>
Definitions:		
Charges	Charges defined as payments required in addition to Rates	Same as No Action Alternative
Category 1 and Category 2	Tiered Pricing as in PEIS	No Tiered Pricing and No definition of Category 1 and Category 2
Contract Total	Contract Total described as Total Contract	Assumes maximum entitlement
Irrigation	Assumes delivery of water for commercial agricultural production, livestock, incidental domestic uses	Same as No Action Alternative

Interim Renewal Contract Provision	No Action Alternative Based on PEIS Preferred Alternative	Proposed Action – Negotiated Contract
Landholder	Landholder described in existing Reclamation Law	Same as No Action Alternative
M&I water	Not addressed as definition – Addressed within an article – Article assumes obtaining a rate for M&I when delivered	Assumes provision of water for irrigation of land in units less than or equal to five acres as M&I water unless Contracting Officer is satisfied use is irrigation
Terms of contract – right to use contract	Assumes that contracts may be renewed Assumes convertibility of contract to a 9(d) contract same as existing contracts	Assumes that contracts will be renewed if Contractor has been compliant with contract Similar to No Action Alternative but preserves positions re: convertibility to 9(d) contract
Water to be made available and delivered to the contractor	Assumes water availability in accordance with existing conditions Assumes compliance with Biological Opinions and other environmental documents for contracting Assumes that current operating policies strive to minimize impacts to CVP water users	Similar to No Action Alternative but makes it more explicit that water to be made available is subject to operational constraints Similar to No Action Alternative; Requires contractor to be within legal authority to implement. Same as No Action Alternative
Time for delivery of water	Assumes timing and quantities of water based on deliveries recognized under an approved schedule	Same as No Action Alternative
Point of diversion and responsibility for	Assumes measurement for each turnout or connection for federal facilities that are used to deliver CVP water as well as other water supplies	Same as No Action Alternative

Interim Renewal Contract Provision	No Action Alternative Based on PEIS Preferred Alternative	Proposed Action – Negotiated Contract
distribution of water		
Rates and method of payment for water	Assumes Tiered Pricing is total water quantity; assumes advanced payment for rates for two months; payment only for water taken	Same as No Action Alternative in terms of payment and take or pay, however tiered pricing is not applicable to contracts less than 3 years
Non-interest bearing operation and maintenance deficits	Assumes language from 1997 Interim renewal contracts	Same as No Action Alternative
Sales, transfers, or exchanges of water	Assumes continuation of transfers; rates for transfer are determined by Reclamation policy	Same as No Action Alternative
Application of payments and adjustments	Assumes credits or refunds	Similar to No Action Alternative except requires \$1,000 or greater overpayment for refund
Temporary reduction – return flows	Assumes that the United States has the right to use return flows which escape or is discharged beyond District boundaries	Same as No Action Alternative
Constraints on availability of project water	Assumes that current operating policies strive to minimize impacts to CVP water users while meeting all CVP obligations	Same as No Action Alternative
Unavoidable groundwater percolation	Assumes that some of applied CVP water will percolate to groundwater	Same as No Action Alternative

Interim Renewal Contract Provision	No Action Alternative Based on PEIS Preferred Alternative	Proposed Action – Negotiated Contract
Rules and Regulations	Assumes that CVP will operate in accordance with then-existing rules	Same as No Action Alternative
Water and air pollution control	Assumes that CVP will operate in accordance with existing rules	Same as No Action Alternative
Quality of water	Assumes that CVP will operate in accordance with existing rules.	Same as No Action Alternative
Water acquired by the contractor other than from the United States	Assumes that CVP will operate in accordance with existing rules	Same as No Action Alternative
Opinions and determinations	PEIS recognizes that CVP will operate in accordance with existing rules; opinions will not be arbitrary, capricious or unreasonable	Same as No Action Alternative with additional clarifications on the right to seek relief and legal effect of section
Coordination and cooperation	Not addressed	Assumes that communication, coordination and cooperation between CVP operations and users should participate in CVP operational decision making discussions; however, parties retain exclusive decision-making authority
Charges for delinquent payments	Assumes that CVP will operate in accordance with existing rules	Same as No Action Alternative
Equal Opportunity	Assumes that CVP will operate in accordance with existing rules	Same as No Action Alternative

Interim Renewal Contract Provision	No Action Alternative Based on PEIS Preferred Alternative	Proposed Action – Negotiated Contract
General obligation	Assumes that CVP will operate in accordance with existing rules	Same as No Action Alternative
Compliance with civil rights laws and regulations	Assumes that CVP will operate in accordance with existing rules	Same as No Action Alternative
Privacy act compliance	Assumes that CVP will operate in accordance with existing rules	Same as No Action Alternative
Contractor to pay certain miscellaneous costs	Assumes that CVP will operate in accordance with existing rules	Same as No Action Alternative
Water conservation	Assumes compliance with conservation programs established by Reclamation and the State of California	Same as No Action Alternative
Existing or acquired water or water rights	Assumes that CVP will operate in accordance with existing rules	Same as No Action Alternative
Operation and maintenance by non-federal entity	Assumes that CVP will operate in accordance with existing rules and no additional changes to operation responsibilities	Similar to No Action Alternative however recognizes role of certain operating Non-Federal Entity/Entities
Contingent on appropriation or allotment of funds	Assumes that CVP will operate in accordance with existing rules	Same as No Action Alternative

Interim Renewal Contract Provision	No Action Alternative Based on PEIS Preferred Alternative	Proposed Action – Negotiated Contract
Books, records, and reports	Assumes that CVP will operate in accordance with existing rules	Same as No Action Alternative
Assignment limited	Assumes that CVP will operate in accordance with existing rules	Same as No Action Alternative
Severability	Assumes that CVP will operate in accordance with existing rules	Same as No Action Alternative
Resolution of disputes	Not addressed	Assumes a Dispute Resolution Process
Officials not to benefit	Assumes that CVP will operate in accordance with existing rules	Same as No Action Alternative
Changes in contractor's service area	Assumes no change in CVP water service areas absent Contracting Officer consent	Assumes changes to limit rationale used for non-consent and sets time limit for assumed consent.
Notices	Assumes that CVP will operate in accordance with existing rules	Same as No Action Alternative
Confirmation of contract	Assumes Court confirmation of contract for assurance relating to validity of contract	No requirement for court confirmation of contract on contracts of short duration

Note: Table 2 contains a summary of many but not all of the terms and conditions of the referenced contracts. The above table is also generally descriptive of contract provisions within the predominantly irrigation contract forms; however, for the precise contract language and an exact comparison, the specific contracts should be referenced.

2.3 ALTERNATIVES CONSIDERED BUT ELIMINATED FROM FURTHER ANALYSIS

2.3.1 Non Renewal of Interim Contracts

Non-renewal of existing contracts is considered infeasible based on Section 3404(c) of the CVPIA, which states that “...the Secretary **shall**, upon request, renew any existing long-term repayment of water service contract for the delivery of water from the CVP....”(emphasis added). The non-renewal alternative was considered, but eliminated from analysis in this 2008 EA because Reclamation has no discretion not to renew existing water service contracts.

2.3.2 Reduction in Interim Contract Water Quantities

Reduction of contract water quantities due to the current delivery constraints on the CVP system was considered in certain cases, but rejected from this analysis of the 15 interim renewal contracts for several reasons:

First, the Reclamation Project Act of 1956 and the Reclamation Project Act of 1963 mandate renewal of existing contract quantities when beneficially used. Irrigation and M&I uses are beneficial uses recognized under federal Reclamation and California law. Reclamation has determined that the contractors have complied with contract terms and the requirements of applicable law. It also has performed water needs assessments for all the CVP contractors to identify the amount of water that could be beneficially used by each water service contractor. In the case of each IRC contractor, the contractor’s water needs equaled or exceeded the current total contract quantity.

Second, the analysis of the PEIS resulted in selection of a Preferred Alternative that required contract renewal for the full contract quantities and took into account the balancing requirements of CVPIA (p. 25, PEIS Record of Decision) (PEIS ROD). The PEIS ROD acknowledged that contract quantities would remain the same while deliveries are expected to be reduced in order to implement the fish, wildlife and habitat restoration goals of the Act, until actions under CVPIA 3408(j) to restore CVP yield are implemented (PEIS ROD, pages 26-27). Therefore, an alternative reducing contract quantities would not be consistent with the PEIS ROD and the balancing requirements of CVPIA.

Third, the shortage provision of the water service contract provides Reclamation with a mechanism for annual adjustments in contract supplies. The provision protects Reclamation from liability from the shortages in water allocations that exist due to drought, other physical constraints, and actions taken to meet legal or regulatory requirements. Reclamation has relied on the shortage provisions to reduce contract allocations to IRC contractors in most years in order to comply with Section 3406(b)(2) of the CVPIA. Further, CVP operations and contract

implementation, including determination of water available for delivery, is subject to the requirements of biological opinions (BO) issued under the Federal Endangered Species Act (ESA) for those purposes. If contractual shortages result because of such requirements, the Contracting Officer has imposed them without liability under the contracts.

Fourth, retaining the full historic water quantities under contract provides the contractors with assurance the water will be made available in wetter years and is necessary to support investments for local storage, water conservation improvements and capital repairs.

Therefore, an alternative reducing contract quantities would not be consistent with Reclamation law or the PEIS ROD, would be unnecessary to achieve the balancing requirements of CVPIA or to implement actions or measure that benefit fish and wildlife, and could impede efficient water use planning in those years when full contract quantities can be delivered.

2.3.3 Delivery of Full Contract Quantities/No Shortages

Given the constraints on available CVP supplies analyzed in the PEIS and updated with the CVP OCAP, an alternative that assumes deliveries of 100 percent contract supplies in every year was not considered. Such an alternative is not legally mandated, and could be achieved, according to the PEIS ROD, only in the future in the event mechanisms to increase CVP yield are implemented through federal legislation, then funded and constructed. The most current analysis of reasonably available deliveries is the CVP OCAP which projects continued constraints for south of Delta (SOD) CVP contractors through 2030. The interim renewal contracts would not exceed 26 months in length, and therefore, there is no reasonable basis to include a “full contract quantity/no shortages” alternative.

2.3.4 Other Alternatives

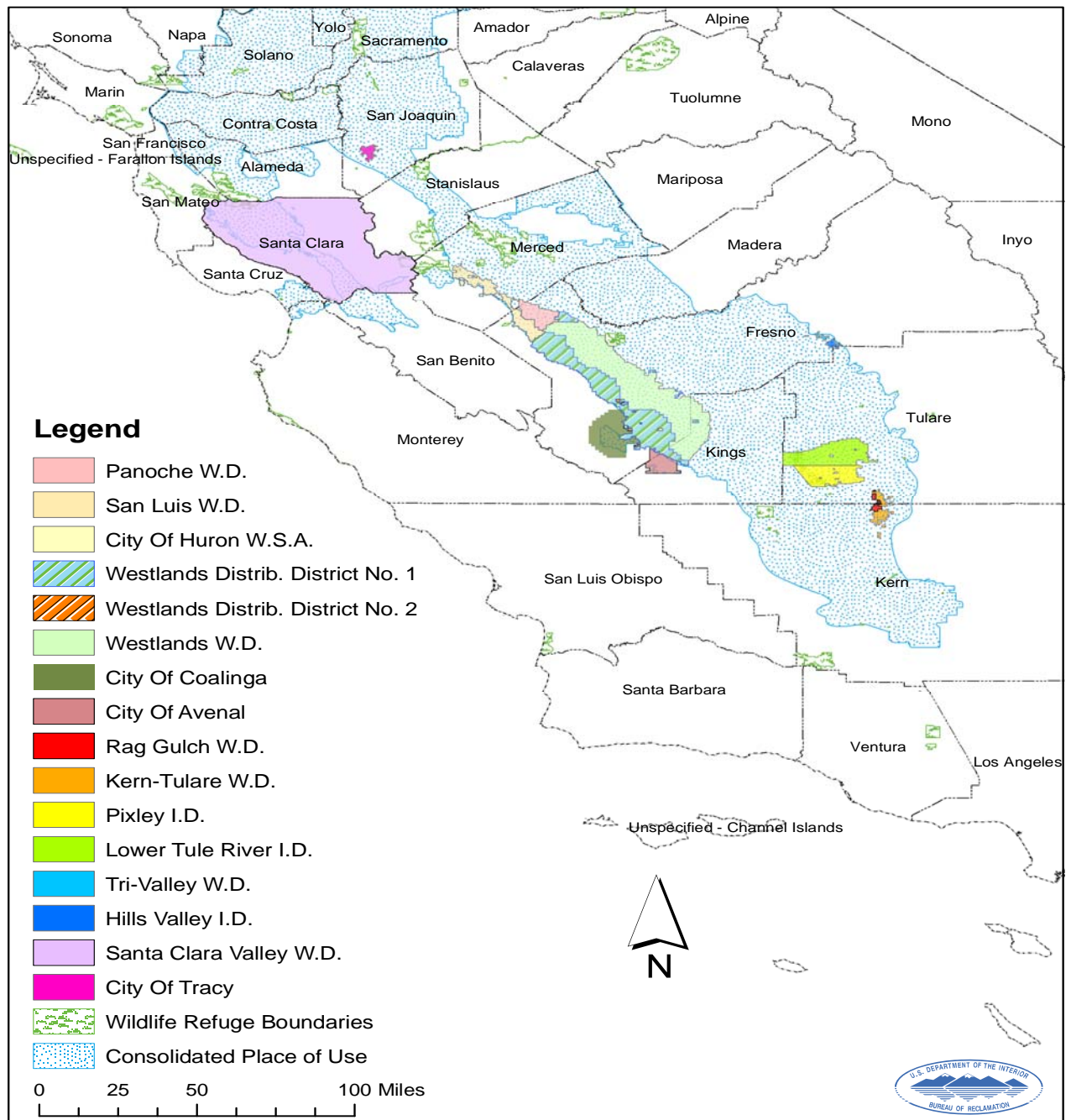
Other alternatives are being addressed through the negotiations process for long-term contracts. Appropriate alternatives will be evaluated as part of the environmental compliance process for long-term contract renewals. Reclamation is pursuing completion of the remaining long-term contract renewals. Reclamation anticipates completing environmental compliance and executing the remaining 15 long-term water service contracts within this interim contract term (2008 to 2010).

Section 3 Affected Environment & Environmental Consequences

This section describes the service area for the 15 contractors analyzed in this EA. These IRC contractors receive CVP water from the Delta Mendota Canal (DMC), the San Luis Canal (SLC), and the Friant-Kern Canal (FKC) (typically via exchange.) The study area, shown in Figure 3.1, includes portions of San Joaquin, Fresno, Kings, Santa Clara, Tulare and Kern Counties. Specifically, the study area includes the service areas of the following fifteen contractors:

- Westlands Water Distribution District #1 (DD#1) (Previous assignment from Centinella)
- Westlands Water DD #1 (Previous assignment from Widren)
- Westlands Water DD #1 (Previous assignment from Broadview WD)
- Westlands Water DD #2 (Previous partial assignment from Mercy Springs Water District)
- Pajaro Valley Water Mangement Agency, Westlands Water District (DD #1), Santa Clara Valley Water District Three-Way Contract (Previous Assignment from Mercy Springs Water District)
- City of Tracy (Previous partial assignment from Banta Carbona ID)
- City of Tracy (Previous partial assignment from Westside ID)
- County of Fresno
- County of Tulare
- Hills Valley Irrigation District
- Kern-Tulare Water District
- Lower Tule River Irrigation District
- Pixley Irrigation District
- Rag Gulch Water District
- Tri-Valley Water District

Figure 3.1 Contractors Service Area Boundaries



Maps of individual Contractor service area boundaries can be found in Appendix B.

For ease of discussion in this document, the analysis will be addressed in groups of contracts related to one entity. For example two of the IRCs that will be analyzed in this document are past partial assignments to the City of Tracy from two separate original contractors. The service areas and thus the affected environment for both contracts is the City of Tracy thus, the City of Tracy's receipt of CVP water from both of these contracts will be addressed in the analysis based on an evaluation of these contract quantities in the City of Tracy service area. The same is true of the assignments and partial assignments to WWD DD#1 and DD#2. These IRCs will be analyzed as a unified analysis of the total water quantity from the four direct assignments to WWD (as well as part of the three-way contract assignment) going to WWD and their affects in WWD's service area. The potential effects to SCVWD will be evaluated as part of the Pajaro Valley Water Mangement Agency, WWD DD #1, Santa Clara Valley Water District (SCVWD) Three-way Contract (Three-Way Contract) and the CV Contractors will be looked at mainly as a group since, for the most part, their districts have many similarities. For those aspects that are unique and are affected differently by the Proposed Action, the CV Contractors will be discussed individually.

3.1 Water Resources

3.1.1 Affected Environment

Surface Water Resources

Central Valley Project Water Supply Prior to the CVP, irrigators in the San Joaquin Valley depended primarily on groundwater for agricultural irrigation. As groundwater quantity and quality declined and land subsidence increased, it became apparent that a supplemental source of water was needed for irrigated agriculture to continue. The CVP was developed, in part, to supply irrigators, primarily in the Central Valley, with a long-term water supply to augment existing groundwater resources.

CVP water is used for the irrigation of agricultural areas, for M&I uses, for the restoration of fisheries and aquatic habitat in waterways that have been affected by water development, for wildlife refuges, and for other purposes. The largest use of CVP water is for agricultural irrigation. The greatest demand for irrigation water occurs in mid- to late summer, as crops mature and crop water use increases. During the winter, farmers also use water for frost control and pre-irrigation of fields to saturate the upper soil as well as for irrigation of permanent crops.

Reclamation makes CVP water available to contractors for reasonable and beneficial uses, but this water is generally insufficient to meet all of the contractors' needs. In the IRC contractor's service areas, contractors without a sufficient CVP water supply may extract groundwater if pumping is feasible or negotiate water transfers with other contractors. Alternative supplies from

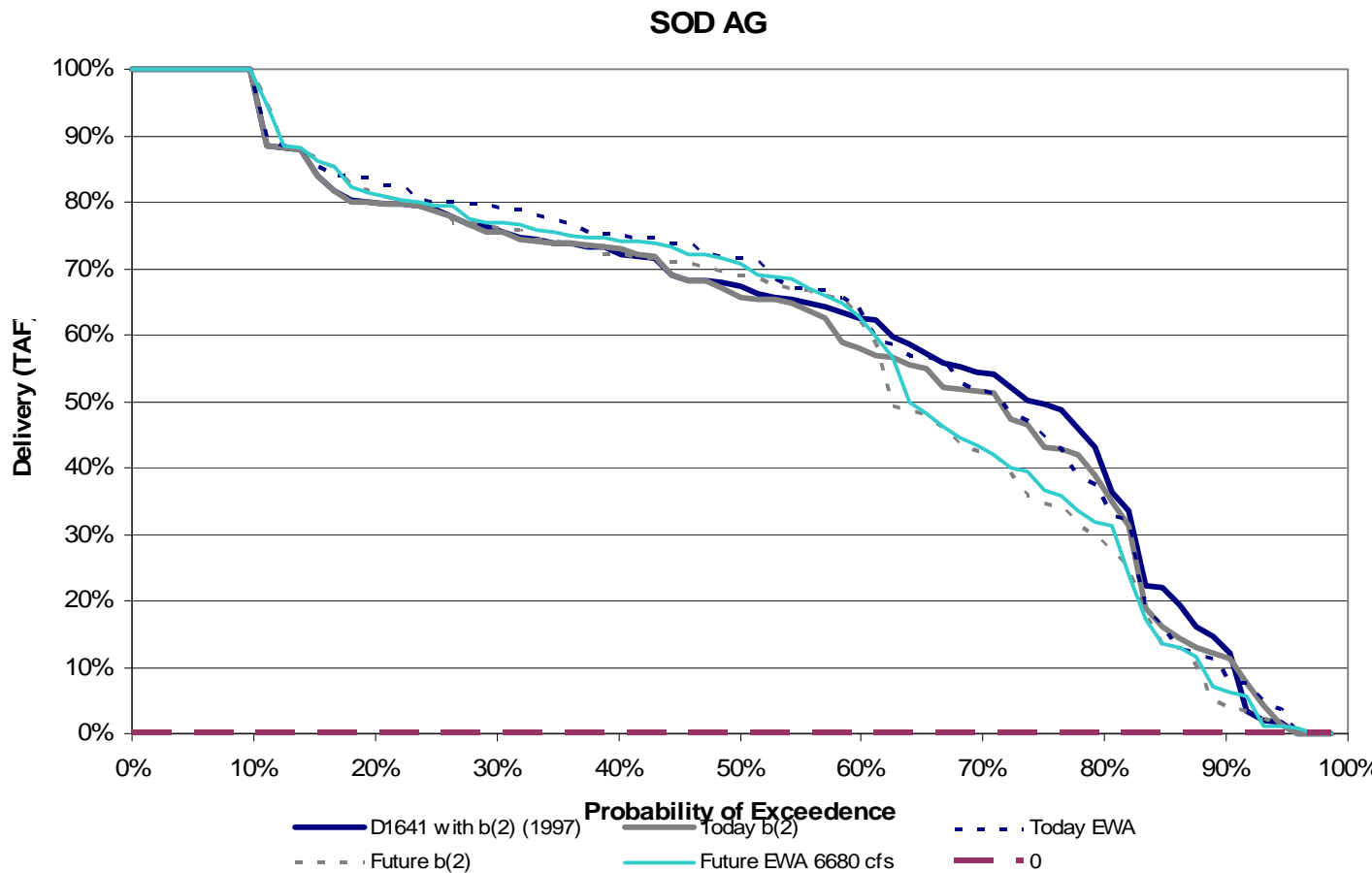
groundwater pumping and/or transfers are accessed as supply sources when CVP surface water deliveries become more expensive than pumping or transfer costs.

Water Delivery Criteria The amount of CVP water available each year for contractors is based, among other considerations, on the storage of winter precipitation and the control of spring runoff in the Sacramento and San Joaquin River basins. Reclamation's delivery of CVP water diverted from these rivers is determined by state water right permits, judicial decisions, and state and federal obligations to maintain water quality, enhance environmental conditions, and prevent flooding. The CVPIA PEIS considered the effects of those obligations on CVP contractual water deliveries on a CVP-wide basis. Experience since completion of the CVPIA PEIS has indicated even more severe contractual shortages are applicable to SOD water deliveries than predicted (Reclamation and FWS 1999), and this information has been incorporated into the modeling for the current CVP and SWP OCAP (Reclamation and DWR, 2004).

Water Delivery Conditions Under CVPIA Implementation With the implementation of the CVPIA PEIS Preferred Alternative and under conditions in the late 1990s, modeling predicts that CVP agricultural water service contractors SOD would receive an average of 59 percent of their current total contract amounts, based upon a hydrologic pattern similar to that of the last 70 years and described in Technical Appendix, Volume 2, of the Draft CVPIA PEIS (Reclamation 1997a). These conditions would result in the delivery of total contract amounts to agricultural water service contractors located SOD approximately 15 percent of the time. Minimum deliveries of zero would occur only in critically dry years.

Tables within the CVP OCAP (Reclamation 2004b) also show that deliveries of over 80 percent of the contract total for agricultural purposes would occur between 22 and 24 percent of the time. (See Figure 3.2) Therefore modeling predicts that tiered pricing, (if it were required), would apply once every fourth or fifth year.

Figure 3.2 CVP South of Delta Agricultural Allocation Exceedance Chart



Source: Reclamation 2004b.

Contractor Water Needs Assessments During the development of the Water Needs Assessments for each CVP contractor, beneficial and efficient future water demands were identified for each contractor. The demands were compared to available non-CVP water supplies to determine the need for CVP water. If the negative amount (unmet demand) is within 10 percent of their total supply for contracts of greater than 15,000 acre-feet (af) per year, or within 25 percent for contracts less than or equal to 15,000 af per year, the test of full future need of the water supplies under the contract was deemed to be met. Because the CVP was initially established as a supplemental water supply for areas with inadequate supplies, the needs for most contractors were at least equal to the CVP water service contract and frequently exceeded the previous contract amount. Increased total contract amounts were not included in the needs assessment because the CVPIA stated that Reclamation cannot increase contract supply quantities. The analysis for the Water Needs Assessment did not consider that the CVP's ability to deliver CVP water has been constrained in recent years and may be constrained in the future because of many factors including hydrologic conditions and implementation of federal and state

laws. The likelihood of contractors actually receiving the full contract amount in any given year is uncertain.

Table 3
IRC Contractor Water Needs Assessments

Contractor	2025 Projected Unmet Demand (af)
WWD	74,287
SCVWD	156,874
City of Tracy	-1,500 based on uncertain transfers in of 32,500 af/y
Lower Tule River ID	23,318
Pixley ID	112,507
Hill's Valley ID	3,092
Kern-Tulare WD	7,517
Rag Gulch WD	9,460
Tri-Valley WD	Data not available
County of Fresno	1,122
County of Tulare	Data not available

WWD Water Use

Description of District Facilities Of the gross 613,100 acres in WWD, approximately 570,000 acres are classified as irrigable. Water is delivered throughout WWD via 1,034 miles of underground pipelines from the SLC & Coalinga Canals and 7.4 miles of unlined canal from Mendota Pool. Seepage and evaporation losses are minimal within the distribution system. The area served by the distribution system encompasses approximately 88 percent of the irrigable land in the district, including all land lying east of the SLC. WWD provides water via gravity water service and pumping from the SLC depending on location. All water is metered at the point of delivery through more than 3,200 agricultural and 250 M&I meter locations. WWD contains three water service areas; these areas, referred to as priority areas, receive varying amounts of available water supply.

WWD CVP Contracts On June 5, 1963, WWD entered into a long-term contract (Contract 14-06-200-495-A) with Reclamation for 1,008,000 af/y of CVP supply from the SLC, Coalinga Canal, and Mendota Pool. The first deliveries of CVP water from the SLC to WWD began in 1968. In a stipulated agreement dated September 14, 1981, the contractual entitlement to CVP

water was increased to 1.15 million af. The long-term contracts for WWD will expire on December 31, 2007, however, interim contracts have been prepared and environmentally analyzed under separate environmental documentation for interim contract renewal for the San Luis Unit contractors. (Reclamation 2007) Please refer to EA 07-56 *San Luis Unit Water service Interim Renewal Contracts 2008 – 2011* for more information. Additionally EA 07-56 is incorporated by reference as it pertains to additional descriptions of WWD facilities, water use and affect environment.

When WWD was originally organized, it included approximately 376,000 acres. In 1963, WWD executed a 40 year contract with the federal government for long-term water service. In 1965, WWD merged with its western neighbor, Westplains Water Storage District, adding 210,000 acres. Additionally, lands comprising about 18,000 acres were annexed to WWD after the merger to form 604,000 acres. WWD has recently purchased 9,100 acres of lands previously owned by Broadview Water District to encompass the current 613,100 acres within its boundary.

The original WWD is referred to as Priority Area I (and the Westplains area is referred to as Priority Area II (DD#1). Priority Area I land has the original CVP contract amount of 900,000 af (approximately 2.6 af/acre) of CVP water annually, while Priority Area II has a contract amount of 250,000 af (approximately 1.3 af/acre) of CVP water annually. Priority Area III (DD#2) is land added to WWD after the merger and has no established water allocation. Priority Area III receives CVP water only if water is available after the needs in Areas I and II are satisfied or if surplus water is available. The 9,100 acres acquired from the purchase of lands from Broadview Water District will be delivered in Priority Area III (DD#2).

WWD annual contract amount is subject to shortages caused by drought, legislative, environmental, and regulatory actions such as the CVPIA, the ESA, and Bay/Delta water quality actions. The contract number for the 900,000 af contract in Priority Area I is 14-06-200-495A. The contract for the 250,000 af in Priority Area II was awarded to WWD per the December 21, 1986 Barcellos Judgment (Barcellos). WWD receives the majority of its CVP water supply via the SLC. Barcellos allowed for the delivery of up to 50,000 af of Priority Area II water via the DMC.

WWD has executed three full or partial CVP contract assignments from DMC contractors to DD#1 over the last decade. Issuance of IRC contracts for these prior contract assignments are covered within this 2008 EA. WWD requested and received approval from Reclamation on the contract assignments of 27,000 af/y from Broadview Water District (Contract Number 14-06-200-8092-IR8), 2,990 af/y from Widren Water District (Contract Number 14-06-200-8018-1R7) and 2,500 af/yr from Centinella Water District (Contract Number 7-07-20-W0055). By helping WWD meet their water supply demands with surface water, the contract assignments have helped to reduce groundwater overdraft and subsidence within WWD. WWD has been acquiring

these assignments to alleviate the recent reduction in water supplies due to environmental water needs in the Sacramento and San Joaquin River Delta (Delta). Additionally, they reduce the need for annual spot market purchases by providing supplemental water at a cost WWD water users can afford.

Additionally, on March 1, 2003, Reclamation approved a partial contract assignment of 4,198 af/y from MSWD (Contract Number 14-06-200-3365A) to WWD DD#2. (This was MSWD second partial assignment. The first was the Three Way Contract which is explained in more detail below.) The partial contract assignment involved the change in delivery of water to land historically owned and farmed by Donald Devine, David E. Wood, and their affiliated entities, (Devine and Wood) in MSWD to Devine and Wood lands in WWD. This action reduced these landowners' reliance on the use of transfers and groundwater to meet their crop water demands and maximized the economic benefit of this water by delivering it to Devine and Wood lands in WWD which were growing higher value crops. This interim renewal of this contract assignment to WWD DD#2 is also part of this EA.

WWD CVP Water Supplies In 1999, Reclamation stated that the estimated average long-term supply for WWD was 70 percent of its water supply contract, or about 805,000 af per year (approximately 70 percent of the contract total). Prior to 1990, WWD's average CVP water supply, including interim CVP water when it was available, was approximately 1,250,000 af/y. The total maximum additional water supply provided from the four assignments to WWD is 32,490 af. The likely long-term average deliveries for this assigned water is 22,743 af/y (as above, this is approximately 70 percent of the contract total). Therefore current average long-term CVP water supply deliveries of 827,743 af/y to WWD are still below the average deliveries prior to 1990.

WWD has an on-going program to purchase and transfer supplemental water from other sources that would allow a better determination of the water supply sooner in the water year. Unlike water agencies with more abundant supplies, WWD must allocate (ration) water to its farmers, even in the wettest years. Average total demand for WWD is approximately 1,394,000 af/y. With its annual CVP contract entitlement of 1,150,000 af/y, and an annual safe yield available from groundwater pumping of approximately 135,000 to 200,000 af/y, the total water supply available from a full CVP contract supply and from groundwater is still less than the total water need. With future CVP water deliveries estimated at 60-70 percent of the contract amount or less, WWD and individual landowners must obtain supplemental water to help make up this deficiency.

Additionally, water users in WWD must commit to the purchase of supplemental water early in the water year when the final price is unknown. Therefore, they limit their requests for supplemental water, and hope that CVP allocations and the pumping of groundwater will meet

the balance of their crop water needs for the year. During periods of high runoff, CVP flood water diverted from Mendota Pool may be purchased.

Three-Way Contract Prior to 1999, MSWD was entitled to up to 13,300 af/y of CVP water pursuant to Contract Number 14-06-200-3365A. In 1999, MSWD assigned 6,260 af/y of its CVP Water Service Contract jointly to PVWMA, WWD DD#1 and SCVWD (who already has a CVP water service contract) (Contract No. 14-06-200-3365A-IR3-B).

The EA entitled CVP Water Supply Partial Contract Assignment from Mercy Springs Water District (Contract No. 14-06-200-3365A) to Pajaro Valley Water Management Area, Santa Clara Valley Water District, and Westlands Water District, Final Environmental Assessment and Final Finding of No Significant Impact, signed April 12, 1999, (1999 EA) supporting the partial assignment of 6,260 af/y from MSWD to PVWMA, WWD, and SCVWD, assessed (1) the impact of the removal of this existing surface water supply (and the entire 13,300 af/y supply) from MSWD and (2) the impact of delivering 6,260 af/y to SCVWD and WWD under the terms and conditions of the then existing MSWD CVP contract and Related Agreement. This environmental document is hereby incorporated by reference into this EA. (This was the first MSWD partial assignment.)

In conjunction with the assignment, PVWMA, WWD, and SCVWD executed the “Agreement Relating to Partial Assignment of Water Service Contract” (Related Agreement). Generally, the Related Agreement allows SCVWD and WWD to take delivery of the water on an interim basis until PVWMA is ready to take delivery of the CVP water for beneficial use in its service area. Specifically, the Related Agreement allocates the water as follows:

- SCVWD has first right of refusal before WWD as follows:

(a) From 1999 - 2009, SCVWD has the first right to up to 6,260 af/y, but is limited during this period to a cumulative total of 25 percent of the total water supply;

(b) for the period of 2010 – 2119, SCVWD continues to have the first right to up to 6,260 af/y but the cumulative total for SCVWD is increased to the greater of 20,000 af or 25 percent of the total CVP water supply provided under this contract assignment; and

(c) up to 6,260 af/y after year 2019 if PVWMA does not exercise its option to assume the full contract water supply, limited to a maximum of 25 percent of the total CVP water supply provided under this contract assignment during any 10 year period.

- The water can be used within WWD as follows:

(a) up to 6,260 af/y in most years between 1999-2009,

(b) up to 6,260 af/y in most years over the period of 2010 – 2019, unless PVWMA decides to assume WWD's portion of this water supply during this same period and

(c) up to 6,260 af/y after 2019 if PVWMA does not exercise its option to assume the full contract water supply.

- Potential use within PVWMA of up to 6,260 af/y by providing an option for PVWMA to:

(a) assume WWD's portion of the water supply between 2010 and 2019

(b) assume the full contract assignment water supply after 2019. If PVWMA exercises its option for the water and then finds it cannot beneficially use the water in their service area, the right to receive the water reverts back to WWD and SCVWD.

Despite the fact that SCVWD has first right of refusal on the contract assignment, historically WWD has taken delivery of the vast majority of the contract assignment water as SCVWD utilizes the water supply as a dry year water supply.

In 1993, the PVWMA Board of Directors approved a Basin Management Plan and in 2002 a Revised Basin Management Plan (BMP) for the purpose of managing groundwater supplies and eliminating sea water intrusion into the groundwater basin. The importation of CVP water, including the MSWD Partial Assignment of 6,260 af/y, is one element of the BMP. An Environmental Impact Report (EIR) for the BMP was certified by PVWMA's Board of Directors in February 2002. A Revised Draft BMP EIS analyzing the impacts of connecting PVWMA's imported water facilities to the San Felipe Project facilities and the use of CVP water in PVWMA's service area was circulated for a 60 day public review period which ended November

21, 2003 and the ROD executed on September 10, 2004, however conveyance facilities to transport the CVP water have not been constructed. The PVWMA will not be able to take delivery of CVP water under Contract No 14-06-200-3365A unless or until the proposed pipeline or other conveyance mechanism is in place for PVWMA to physically receive this water. Since it is highly unlikely that PVWMA will have the ability to take CVP water during the two year IRC period there will be no analysis of water deliveries to PVWMA within this 2008 EA (as discussed in the Scoping section on page 7.) This partial assignment will be referred to as the Three Way Contract throughout the 2008 EA.

As most of the partial assignment goes to WWD, it has helped WWD reduce reliance on the spot water market for supplemental water, and helped to stabilize WWD base water supply, reduce groundwater overdraft and subsidence.

SCVWD Water Use The SCVWD is a water supply wholesaler who conserves, imports, treats, distributes, and is responsible for the quality of water. In 1929, the Santa Clara Valley Water Conservation District was created by public vote under provisions of the Water Conservation Act of 1929 (Jones Act) to alleviate land surface subsidence in and around San Jose. The District included about 350 square miles of Santa Clara Valley which overlay the groundwater basin between Coyote and Palo Alto. The plan was to construct dams to capture winter rains that would be used to recharge groundwater aquifers and wells. The Santa Clara County Flood Control and Water Conservation District was created in 1951 by special act of the Legislature and placed under the direction of the County Board of Supervisors. In 1968, the Santa Clara Valley Water Conservation District merged with the Santa Clara County Flood Control District and became governed by an independent board. The name was changed in 1974 to SCVWD. Its purposes were to reduce flood hazards, conserve local water resources, and provide and distribute an adequate water supply for all of Santa Clara County. In 1991, the State Legislature revised SCVWD's enabling act to recognize its role as the comprehensive water resources management agency for Santa Clara County and to authorize SCVWD to restore streams, riparian corridors and natural resources while carrying out its water management and flood protection duties. SCVWD provides wholesale water service to 13 retail agencies serving Santa Clara County. SCVWD also provides water directly to the agricultural community and to supplement groundwater.

SCVWD's water supply consists of two primary sources: local supplies and imported water. Local supplies include captured surface runoff, groundwater, and recycled water. Imported supplies are from the SWP, CVP, and Hetch-Hetchy (City of San Francisco). Most imported water comes to SCVWD from the Sierra Nevada Mountains via the Delta and is delivered by the CVP and SWP.

SCVWD has two contracts for water delivery from the CVP. The first CVP contract was executed in 1977 for 152,500 af/y. SCVWD's annual contract amount is subject to shortages

caused by drought and environmental and regulatory actions such as the CVPIA, the ESA, and Bay/Delta water quality actions. The second contract, executed in 1999, is Contract Number 14-06-3365A-IR3-B, (the Three Way Contract), the partial assignment from MSWD which was discussed above and is one of the IRCs analyzed in this EA. SCVWD imports CVP deliveries via the San Felipe Division of the CVP which originate from Delta water stored in the San Luis Reservoir in Merced County and delivered to the Coyote Creek Pump Station west of Anderson Reservoir via a series of pipelines and tunnels.

SCVWD has a contract with the California Department of Water Resources (DWR) for 100,000 af/y from the SWP. Water is delivered via the Banks pumping plant in the southern Delta and the South Bay Aqueduct delivers the water to a terminal tank at the Penitencia Water Treatment Plant in east San Jose. SWP water is subject to shortages caused by drought conditions and environmental/regulatory actions in the Bay/Delta.

Several municipalities in Santa Clara County have contracts with the City and County of San Francisco for water from the Hetch-Hetchy project. Imported deliveries originate in the Tuolumne River watershed in the Sierra Nevada Mountains and are transported directly by closed conduit to the Bay-Area. The SCVWD does not control or administer Hetch-Hetchy deliveries to Santa Clara County; however, this supply reduces the demands on SCVWD supplied water (SCVWD, February 1993.)

SCVWD owns and operates 17.3 miles of canals, 8.4 miles of tunnels, 142 miles of pipelines, 3 pumping stations and 3 treatment plans as part of the overall water treatment, distribution and recharge systems. SCVWD operates ten local reservoirs, the largest one being Anderson Reservoir with maximum storage of approximately 89,000 af. SCVWD also operates a comprehensive groundwater management program, including onstream and offstream recharge facilities and extensive monitoring. SCVWD manages pumping demands on the groundwater basin indirectly through its contract and non-contract water rates with retail water agencies.

SCVWD has established rights to 35 percent of the existing Semitropic Groundwater Banking Program in Kern County which is used to offset shortfalls in annual water supplies. Deliveries to storage would primarily take place in wet years and withdrawals from storage would occur in dry years to offset water shortages. The agreement reserves for SCVWD up to 350,000 af of storage, and improves SCVWD's supply reliability by enabling storage of wet-year water for use during future dry years. Reclamation has approved the deliver of up to 100,000 af/y of CVP supplies to be banked in Semitropic for 21 years through the year 2027. (SCVWD also has DWR's approval to bank SWP supplies.) Reclamation prepared an EA and FONSI analyzing this approval entitled EA 05-126 *Santa Clara Valley Water District Long-Term Groundwater Banking Project Storage and Exchange of CVP water with Semitropic Water Storage District* was signed on April 18, 2006 and is hereby incorporated into the EA by reference.

In 2003, SCVWD prepared an update to its Integrated Water Resources Plan. This study indicates that, over the next 40 years, SCVWD could experience significant shortages, particularly if various risk scenarios, such as climate change, are realized. Although SCVWD has a variety of water supplies, it has limited ability to use its local, imported and groundwater supplies interchangeably, and its operational flexibility is further limited by water rights, regulations, institutional agreements, flood management, water quality, efficiency and cost issues. These factors place limits on SCVWD's ability to change the timing of deliveries or to shift supplies from one source to another. SCVWD has limited capability to store early deliveries in its surface reservoirs and groundwater basins; its facilities are neither fully integrated nor interchangeable; and its retailers have pumping limitations on groundwater supplies and limited re-operational capabilities.

Total annual water use in Santa Clara County is currently estimated to be 400,000 af. Approximately 10 percent of this is for agricultural purposes, and most of the remaining use is for M&I purposes, which includes residential, commercial, industrial, and institutional water use. Water is also used to meet environmental needs, such as maintenance of minimum stream flows to meet fishery needs.

City of Tracy (Tracy) Tracy is located in San Joaquin County. It was founded in 1878 as a small railroad town. Tracy is 60 miles east of San Francisco and 60 miles south of Sacramento (Figure 1-1). Tracy city limits encompasses 21 square miles. Tracy provides water service to all of its approximately 78,000 residents and to approximately 400 residents of the Larch-Clover County Services District. Tracy also provides water service to the unincorporated Patterson Business Park. Tracy currently delivers approximately 18,000 af/y within its service territory and expects that demand will grow to 27,000 af/y by the year 2020 (City of Tracy, 2005).

Approximately 60 percent of Tracy's water resources come from surface water flowing through a variety of regional rivers, creeks, and canals. Tracy's surface water comes primarily from a long-standing contract with Reclamation up to 10,000 af (Contract 14-06-200-7858A.) (Renewal of this contract is not part of the Proposed Action. It does not expire until 2014.) The long-term water service contract with Reclamation is due to expire in 2014, though Tracy and Reclamation are in ongoing negotiations for contract renewal. Tracy also has two partial contract assignments. The West Side Irrigation District (WSID) has assigned 2,500 af/y, with an option for an additional 2,500 af/y, and the Banta-Carbona Irrigation District (BCID) has assigned 5,000 af/y to Tracy (Reclamation, 2003 and 2003b). These are the two IRCs analyzed within this document. The two assignments from BCID and WSID increased Tracy's CVP water supply from 10,000 af to 17,500 af and converted the use of these water supplies from agricultural to M&I. This conversion was previously analyzed within the contract assignment EA. In normal and wet hydrologic years, Tracy's combined water resources are in excess of their current

demand (City of Tracy 2005). Plainview Water District also provides up to 1,000 af/y. Forty percent of Tracy's water supply comes from groundwater.

Tracy has four surface water intake pumps with capacity to pump approximately 20 million gallons per day for the DMC and deliver it to the Tracy Water Treatment Plant (WTP). The water is pumped into a 3 million gallon (MG) equalization tank at the WTP prior to treatment. Tracy operates three storage reservoirs located at the WTP which provide the system with emergency fire and operational storage. One reservoir has a storage capacity of 0.94 MG and the other two have storage capacity of 2.66 MG for a combined storage capacity of 3.6 MG.

Cross Valley Contractors

Cross Valley Contractors Contractual Water Supplies The eight CV Contractors CVP IRCs entitle these contractors to an annual delivery of up to 128,300 af/y of water. Unlike the other seven IRCs analyzed in this EA, the IRCs for these eight contractors will be three party contracts. In these three-party contracts Reclamation provides the water supply in the Delta and DWR pumps the water from the Delta and conveys the water to the Cross Valley Canal (CVC). Similarly to other SOD contractors, CV Contractors are limited in their water allocation south of the Delta by the ability to convey the water south of the Delta. That is, limitations on the Tracy Pumping Plant, Harvey O. Banks Pumping Plant, and available storage in San Luis Reservoir control the amount of water that can be delivered south of the Delta. Recent constraints placed on export pumping through the Bay-Delta Plan Accord, endangered species actions, and the final decision on CVPIA Section 3406 (b)(2) water all constrain the diversion of water at the CVP and SWP export facilities. Unlike other SOD contractors most of the CV Contractors' water is pumped via DWR facilities at a lower priority than SWP water supplies. This results in additional reductions in water quantity as well as limitations on the delivery timing. Deliveries are limited to pumping windows when the SWP does not need the full allowable pumping capacity rather than contractors scheduling water on a demand pattern. CV Contractors' supplies are conveyed through the California Aqueduct to Tushman by DWR.

Due to its heavy agricultural focus, 82 percent of the CV Contractors' service area land is irrigated. The CV Contractors' service area receives water from the CVP, other surface water sources, and groundwater pumped from on-farm sources. In 1987, total farm deliveries of water amounted to 273,631 af. On-farm groundwater contributed 82 percent (224,309 af) of the CV Contractor's total farm deliveries. Surface water supplied from the CVP totaled 64,320 af, but combined with non-project surface water (2,048 af) and taking losses of 17,046 af into consideration, the total net surface water delivered to the CV Contractors was 49,322 af.

Cross Valley Contractor "In Delta Allocation" Reclamation has determined that the CV Contractor's IRCs allow the difference between the SOD allocation and the amount Reclamation could allocate to the SOD contractors if the Delta pumping restrictions were not limiting to be

delivered to the CV Contractors in the Delta upon their request.. This additional delivery is contingent upon the CV Contractors obtaining a conveyance mechanism outside of the delivery mechanism envisioned in the IRC and that will not harm other CVP contractors. Although this option has been available to the CV Contractors for several years, to date this has not been taken advantage of mainly due to the difficulty in arranging alternative conveyance mechanisms. It is unlikely that the “In Delta Allocation” will be utilized during the two-year term of these IRCs and, additionally, since the specific conveyance mechanism is not known at this time, the action cannot be fully analyzed. This additional allocation will not be analyzed in this document. If a CV Contractor obtains an alternative conveyance mechanism and requests the “In Delta Allocation” Reclamation will analyze the environmental effects of that action through separate documentation. Additionally, prior to approval of the “In Delta Allocation”, Reclamation would consider all CVP needs, hydrologic conditions, operational constraints and requirement for the requested conveyance outside of the IRC conveyance agreement with DWR.

Kern-Tulare and Rag Gulch Water Districts’ (KTRG) Water Use KTRG provide irrigation water to over 19,000 acres of high-value permanent crops in Kern and Tulare counties. (These districts share management and distribution facilities and although they have separate CVP contracts, they are essentially managed as a unit. For this reason within this 2008 EA they will be discussed together.) The annual irrigation demand is approximately 54,000 af, of which the water districts currently provide approximately 40,000 af (2.2 af/acre) of imported water. The remaining 14,000 af/y (0.8 af/acre) is from groundwater pumped by water users.

KTWD has a 40,000 af/y CVP water service contract (Contract number 14-06-200-8601 – IR11) and RGWD has a CVP contract for 13,300 af/y (Contract number 14-06-200-8367 – IR11.) KTRG also has two Kern River contracts (contract numbers 76-61 and 76-63) which expire in 2012 for a total of 23,000 af/y. KTRG also has long term banking approval for CVP water to be deposited in both Rosedale Rio-Bravo WSD’s and North Kern WSD’s groundwater banks. From Rosedale Rio-Bravo, KTRG will be able to withdraw up to 9,000 af/y of previously banked water and from North Kern 5,000 af/y of previously banked water may be withdrawn.

KTRG share common distribution systems and staff. The KTRG distribution system was constructed over the last 48 years, through a combination of KTRG financed and privately financed improvements. KTRG facilities consist of 12 pumping plants and approximately 65 miles of pressure pipeline to deliver water upslope of the FKC. There are four regulating reservoirs in the district totaling 510 af of storage. Because KTRG’s distribution system is inadequate to fully satisfy irrigation demands and system capacities must be prorated during the summer months, water users rely upon privately-owned wells, even in the wettest of years.

The KTRG distribution system consists of four pumping plants located along the FKC, four regulating reservoirs, seven re-lift pumping plants, and approximately 70 miles of buried pipelines. In addition, KTRG owns two pumping plants located in Delano Earlimart Irrigation

District reservoirs and one pumping plant located in a Southern San Joaquin Municipal Water District reservoir.

Lower Tule River Irrigation District's (LTRID) Water Use The water supplies in LTRID are groundwater, water rights on the Tule River, and CVP water under two separate contracts. The Tule River water supply is approximately 70,000 af/y. Tule River flows approximately 22 miles through the central part of the District. Porter Slough follows a parallel course north of the Tule River. In 1951, LTRID entered into a long-term water service contract with Reclamation for 61,200 af/y of Class 1 and 238,000 af/y of Class 2 Friant water. In 1975, LTRID entered into a three-way contract with Reclamation and the DWR to provide an additional 31,102 af/y of CVP water supply. This second contract is the IRC analyzed within this document. (Current contract number 14-06-200-8237A-IR11)

The towns of Woodville, Popular and Tipton lie within the District's boundaries but are not serviced by LTRID. The District's entire distribution system is unlined earth canals. Collectively, LTRID owns or controls approximately 163 miles of canals and approximately 47 miles of river channel. LTRID maintains and operates 12 recharge and regulating basins, covering approximately 3,000 acres. In wetter years, LTRID uses these facilities to recharge the groundwater reservoir. LTRID does not own or control groundwater extraction facilities. Therefore, each landowner must provide privately owned wells to sustain irrigation during periods when LTRID does not have surface water available.

In the past Arvin Edison Water Storage District (AEWSD) and LTRID exchanged CVP water supplies from the Delta and Friant facilities. Several years ago, however, the exchange agreement between AEWSD and LTRID was terminated. Currently, because they have no exchange arrangements to take delivery of their CV supplies off of the FKC, LTRID sells their CVP contract supplies from the Delta and uses the money to purchase other supplies on the water market. LTRID may enter into similar exchange arrangements with other water districts to obtain their CVP water supplies from the Delta. Proposed exchange arrangements under Article 5 of the long-term renewable contracts and are not within the scope of this EA.

Pixley ID (PXID) Water Use The PXID's water supply is derived from the use of groundwater, diversions from Deer Creek and CVP water. PXID entered into a long-term water service contract with Reclamation in 1975 for 31,102 af/y (Current contract number 14-06-200-8238A-IR11). The City of Pixley is located within the PXID's boundaries. However, PXID does not serve the City of Pixley.

PXID currently contains 69,550 acres, of which 48,302 are irrigated. Deer Creek flows westerly through the entire length of the District. The FKC is located between one to five miles east of the PXID's boundary.

PXID operates a conjunctive use program by supplying a portion of the irrigated lands and a portion for direct groundwater recharge through Deer Creek, the existing canal system and sinking basins owned or leased by the district. PXID obtains their CVP supplies through four turnouts on the FKC into Deer Creek to District diversions or Deer Creek. The District has 45 miles of unlined canals that convey water and provide groundwater recharge. An estimated 30 percent of the CVP supplies are “lost” through the unlined canals. However, the recharge to the groundwater is considered a beneficial use of this water. PXID maintains and operates nine recharge and regulating basins covering approximately 330 acres.

PXID owns or has access to approximately 330 acres of sinking/re-regulating basins. These basins, along with the Deer Creek channel and the District’s canals, are used for direct groundwater recharge when surface water supplies are available. It is estimated that a third of the water imported by the District has been directly recharged into the underground reservoir by District operations since the District’s inception.

PXID does not own or operate any groundwater extraction facilities. However, groundwater is the primary water supply available to lands within PXID. Privately owned wells currently provide water to all irrigated lands within the District. Approximately 31,957 acres of lands rely totally on groundwater pumping for irrigation.

In addition, the District may enter into an agreement with the Pixley Wildlife Refuge (PWR) to recharge the groundwater. The PWR is approximately 960 acres.

County of Fresno Water Use The County of Fresno has a CVP water service contract for 3,000 af of water (Current Contract number 14-06-200-8292A-IR11). The County of Fresno currently serves this water to one subcontractor – CSA #34 who utilizes the supply for M&I purposes. This subcontractor draws their water directly from Millerton Lake after their CV Delta supply has been exchanged for Friant supplies. However, in the past several years the County has been unable to find an exchangor in order to receive their CVP water, therefore they have relied upon transfers from the City of Fresno or Fresno Irrigation District.

County of Tulare Water Use The County of Tulare entered into a long-term water service contract with Reclamation in 1975 for 5,308 af/y (current contract number 14-06-200-8293A-IR11). The County of Tulare has ten subcontractors that are the recipients of the CVP water under this contract. The ten subcontractors are described below:

Alpaugh Irrigation District (AID) AID was formed in 1915 and is located in Tulare County approximately 15 miles southerly of Corcoran and 15 miles northwesterly of Delano. AID is comprised of approximately 10,500 acres, of which 5,400 are irrigated. Groundwater provides the primary water supply to AID. AID also operates 18 wells. Using two of its deep wells, AID provides approximately 300 af/y a potable water supply to the community of Alpaugh. AID

maintains 60 miles of domestic water pipelines. The population in Alpaugh is approximately 1,150.

In 1975, AID entered into a contract with the County of Tulare as a subcontractor for CVP water. Historically, AID has entered into exchange arrangements with AEWSO under Article 5 of the long-term water service contracts. Via this contract AID could receive up to 150 af/y of CVP water; however, in recent years because of limited deliveries and unreliability of availability, AID has not taken any CV water.

AID receives its CVP water supplies via Deer Creek. Water from the FKC is diverted into Deer Creek and flows approximately 12 miles to the Deer Creek check structure located on the westerly side of Highway 43 at the northeasterly corner of the district. AID has approximately 45 miles of unlined canals and approximately 25 miles of pipeline. The district has three regulating reservoirs. Reservoir No.1 is the primary regulatory reservoir used year round to provide timing and flexibility in water deliveries. Reservoirs 2 and 3 are used to provide additional storage to meet the peak demand flows during the summer months. Collectively, the reservoirs cover approximately 800 acres and maximum capacity of 4,000 af.

AID does not have any other contracts or water rights to surface water supplies. However, during wet years the district has been able to utilize excess waters available in the Homeland Canal located on the westerly side of AID, which if not used, would flow into the historic Tulare Lake. The main crops grown in AID are cotton, alfalfa, barley, and wheat.

Atwell Island Water District (AIWD) AIWD was established in 1977 and is located in Kings and Tulare Counties approximately 1 ½ miles south of the community of Alpaugh. The District is comprised of 7,136 acres, of which, 4,645 are irrigated. In 1993, AIWD and Hills Valley Irrigation District entered into a County of Tulare subcontracts for CVC CVP water. Both AIWD and Hills Valley Irrigation District (HVID) receive 954 af/y of CVP water. In recent years, HVID has obtained 904 af/y of AIWD's supply under this agreement resulting in a reduction to 1,055 af/y for AIWD. The CVP water from the Friant facilities that would have flowed to AEWSO are diverted at MP 102.67R via Deer Creek through AID's facilities to AIWD.

AIWD also is a participant in the Mid-Valley Water Authority. This Authority was organized to develop the Mid-Valley Canal.

The distribution of AIWD's water is performed by AID through a wheeling agreement. AID owns and operates the approximately 36 miles of unlined canals and laterals. AIWD does not operate or maintain groundwater recharge or extraction facilities. Landowners must provide privately owned wells to sustain irrigation during periods when the District does not have surface water available. The District serves only agricultural users. The main crops are cotton, alfalfa, barley, and wheat.

AIWD provides an in lieu conjunctive use program. In wet years, AIWD purchases supplies for use in the District in lieu of pumping groundwater. The District uses primarily surface water supplies when it is available and relies on groundwater only when surface water is unavailable.

Hills Valley Irrigation District (HVID) See description below. HVID receives up to 1,858 af/y (total of 954 af/y and 904 af/y) of CVP water under its contract with County of Tulare.

Sausalito Irrigation District (SID) SID receives up to 100 af/y of CVP water under its contract with County of Tulare. SID was formed in 1941 and is located in Tulare County, approximately ten miles southwest of Porterville, two miles south of Poplar, eight miles east of Tipton and five miles west of Terra Bella. Deer Creek, an intermittent stream, crosses the District for about five miles from its southern boundary, but there are no District diversions off Deer Creek. The FKC is located on the eastern boundary of the District.

HVID entered into a long-term renewable contract with Reclamation in 1959 for construction of facilities. Water deliveries began in 1961 for 21,200 af/y Class 1 and 32,800 af/y of Class 2 water. Currently, the District comprises of 19,453 acres, of which 19,057 are irrigated. The District has five individual water users that have rights in Popular Irrigation Company of 9.5 shares at 55 acre feet per share from Mole Ditch. SID engages in exchanges with the other CV Contractors.

SID obtains its CVP water supplies from four diversion points on the FKC between MP 11.64 and 107.35 and Deer Creek diversion at MP 102.69. The District's distribution system is 55 miles of pipeline with one recharge pond that covers approximately ½ acre. Deer Creek also provides groundwater recharge in wet years.

Fransinetto Farms Fransinetto Farms receives up to 400 af/y of CVP water under its contract with County of Tulare. (Fransinetto Farms has replaced Smallwood Vineyards within the last three years as the County of Tulare subcontractor.)

Stone Corral Irrigation (SCID) SCID receives up to 950 af/y CVP water under its contract with County of Tulare. SCID was formed in 1948. SCID is located in Tulare County, approximately 30 miles southeast of Fresno and 10 miles north-northeast of Visalia. SCID is comprised of 6,488 acres, of which 5,470 acres are irrigated. In addition to the County of Tulare subcontract, SCID entered into a long-term water service contract with Reclamation for 7,700 af/y of Friant Division Class 1 water in 1950. In 1991, the contract was amended to 10,000 af/y of Class 1 water. The safe yield for the groundwater supply in SCID is approximately 3,200 af.

The FKC runs approximately along the north and east boundaries of the District. SCID obtains the CVP water from the FKC at MP 57.90, 59.33, 60.90 and 62.68. The District's conveyance

system is 27 miles of pipeline. SCID serves only agricultural water. The main crops are citrus, cotton, deciduous and subtropical fruit.

City of Lindsay In 1958, Lindsay entered into a long-term water service contract with Reclamation for 2,500 af/y of Class 1 Friant water under contract number 5-07-20-W0428. City of Lindsay receives up to 50 af/y of CVP water under its contract with County of Tulare.

Lindsay obtains their CVP water from the FKC at the Honolulu Street turnout. The water treatment plant is at the same location and provides filtration, chemical additions and chlorination.

Strathmore Public Utility District Strathmore PUD receives up to 400 af/y CVP water under its contract with County of Tulare.

Styrotek, Inc Styrotek receives up to 45 af/y CVP water under its contract with County of Tulare. Styrotek is an industry manufacturing of shipping containers. Most of the CVP water is used for cooling and is recirculated back into Reclamation's conveyance system.

City of Visalia The City of Visalia receives up to 300 af/y CVP water under its contract with County of Tulare. The City has a keen interest in wisely managing the water supply, recognizing that water is a precious resource that is in short supply in this area. The City has established water conservation programs, developed groundwater recharge systems and is currently considering a water acquisition fee be applied to annexations and development projects.

Hill's Valley Irrigation District Water Use HVID is currently 4,223 acres, of which 3,067 are irrigated. The District is divided into three segments. Improvement District No.1 covers 1,276 acres, Improvement District No. 2 covers 1,990 acres and the remaining 795 acres are outside any improvement district but are within the District's boundaries. In 1976 HVID entered into a long-term water service contract with Reclamation for 2,146 af/y. In 1995, the contract amount was amended to 3,346 af/y. The District has historically received the CVP contract supplies through an exchange with AEWS. In 1993 HVID, along with Atwell Island Water District entered into a contract for CVC water with the County of Tulare. HVID acquired an additional 954 af/y and subsequently acquired another 904 af/y from Atwell Island Water District portion of the County of Tulare contract. HVID serves water only to agricultural users. HVID obtains its CVP water supplies from its turnout at MP 41.15L of the FKC. The District's distribution system comprises of 10.5 miles of pipeline. Within Improvement District No. 2 are two regulating reservoirs. The Anchor Reservoir and American Reservoir have storage capacities of approximately 0.53 and 2.0 million gallons respectively. Within Improvement District No. 1 is a 15 af regulating reservoir. The District does not own groundwater extraction facilities. Therefore, individual landowners must provide their own wells to sustain irrigation during periods when HVID does not have surface water available. The main crops in HVID are citrus and grapes.

Tri-Valley Water District Use (TVWD) TVWD has approximately 2,727 acres of irrigated agriculture. TVWD receives up to 45 af/y CVP water under its subcontract with County of Tulare. TVWD is in the Kings groundwater subbasin which has a “safe yield” which is estimate to be 1,048 ac-ft/year.

Conveyance

The Delta All of the water supplied to the IRC contractors is pumped from the Delta. The CVP water originates in the Sacramento and San Joaquin Rivers. CVP facilities provide for the transport of water through both the San Francisco Bay-Delta Estuary and the Sacramento and San Joaquin River systems and provide for the delivery of water to CVP contractors in both Santa Clara County and the San Joaquin Valley. The Delta Cross Channel moves water from the Sacramento River through an excavated channel and natural channels to the Tracy Pumping Plant, which then pumps water into the DMC.

WWD Conveyance WWD receives water both from the DMC and the SLC with the majority diverted from the SLC. The DMC delivers Delta water to the west side of the San Joaquin Valley, ending at the Mendota Pool, 30 miles west of the city of Fresno. The SLC, which originates at O’Neill Forebay, is a joint use facility with the SWP. Facilities utilized to convey water to WWD include the O’Neil Pumping-Generating Plant and Intake Canal, San Luis Dam and Reservoir (for storage as needed), Dos Amigos Pumping Plant, Coalinga Canal, the Pleasant Valley Pumping Plant, and the SLC from O’Neil Forebay to Kettleman City.

SCVWD Conveyance The Act of August 27, 1967, authorized the construction, operation, and maintenance of the San Felipe Unit as an integrated feature of the CVP. The San Felipe Unit is owned by Reclamation, but operated and maintained by SCVWD. The San Felipe Unit was authorized to provide CVP water service to San Benito County, Santa Clara County, and that portion of Monterey and Santa Cruz counties represented by the PVWMA. Water is conveyed from San Luis Reservoir through the Pacheco Tunnel and Conduit. Water is then conveyed from the Pacheco Conduit into the Santa Clara Conduit to serve SCVWD. As previously mentioned facilities have not yet been constructed for water delivery to the PVWMA service area.

Conveyance of Delta CVP Water to the CV Contractors Reclamation delivers CVP water into DWR’s Clifton Court Forebay in the Delta. DWR conveys the CVP water directly through the SWP facilities to the CVC, or may temporarily store the water in San Luis Reservoir for delivery to the CVC at a later time.

Under the temporary storage scenario, DWR conveys the CV Contractor’s CVP water from the Delta to the state or federal share of the San Luis Reservoir for later release and delivery to the CV Contractor. DWR also has an option of replacing water delivered to the CV Contractors from DWR’s share of San Luis Reservoir prior to receiving CVP water from Reclamation if DWR

determines that capacity is available for such conveyance, storage or exchange. Such deliveries of CVP water will not occur if an increase in cost or adverse affects to SWP operations and the quantity or quality of water deliveries to SWP contractors would result. The CVP water is ultimately delivered to the CVC and the CV Contractors as described below subject to capacity or other constraints.

Under the direct delivery scenario, DWR diverts water for the CV Contractors from the Delta at the Harvey O. Banks Pumping Plant through the California Aqueduct, and to the SWP's portion of San Luis Reservoir. Historically, from San Luis Reservoir, the water is conveyed via the California Aqueduct to the CVC Reach 12-E turnout in Kern County and delivered to AEWS. AEWS takes delivery of the Delta CVP water, then "exchanges" Friant CVP water that is then delivered to the CV Contractor's turnouts along the FKC.

A Memorandum of Understanding (MOU) between AEWS and the CV Contractors was executed in the 1970s to delineate the specifics of this exchange mechanism by which CV Contractors take delivery of their water supplies. Exchanging water with AEWS in accordance with the 1970s MOU does not need further environmental documentation under NEPA however if exchange arrangements with other entities are proposed or proposals are outside of the bounds of the 1970s MOU, additional environmental documentation would be required. KTRG and other CV Contractors are coming to Reclamation with proposed exchange arrangements with others and new agreements with AEWS. Some of these arrangements (on a short term basis) have already been analyzed in other NEPA documents. The analysis of the approval of exchange arrangements with "others" will be done in separate environmental documentation.

The CV Contractors joined in the cost sharing with a group of SWP contractors to construct the CVC. In 1975, the privately owned and locally financed CVC was completed, bringing water from the California Aqueduct through a series of six lift pumps to the east side of the southern San Joaquin Valley to the FKC near the city of Bakersfield. The CVC provides improved flexibility in conveying water supplies in the lower San Joaquin Valley allowing Friant and Delta water to be conveyed east to west by gravity or west to east by pumping. The CVC also conveys non-CVP and non-SWP water to non-CVP and non-SWP contractors. The operations of the CVC require extensive coordination among the users for conveyance and deliveries. Exchanges of water among the water districts are common. Reclamation only has jurisdiction and approval of exchanges or transfers involving CVP water. CVP water exchanges under IRC Articles 5 and 9 would undergo separate environmental analysis and review with the exception of Article 5 exchanges involving AEWS for the purpose of facilitating the delivery of CVP supplies to the CV Contractor pursuant to the 1975 MOU. These exchanges with AEWS are necessary, well described and have occurred historically. Therefore, they are within the scope of this IRC approval process and environmental analysis.

Kern Tulare and Rag Gulch Siphons KTRG constructed siphons on the east side of the CVC and the west side of the FKC and have direct access to the CVP supplies from the Delta. The siphons transport CVP or other water from the CVC into the FKC and then under appropriate conditions this water can be pumped over the northward checks allowing the water to flow upgradient in the FKC to KTRG. With direct accessibility to CVP supplies, KTRG no longer relies exclusively on exchanges of CV water for Friant water.

Friant Direct Supplies The IRCs provide for the CV Contractor water supplies (up to their contract totals) to come directly from the Friant Division under specific circumstances. All Friant Division water requirements must be met prior to making this water available to the CV Contractors. Therefore, the frequency and availability of direct delivery of Friant supplies for the CV Contractors is low and occurs only in very wet years. On the rare occasions when Friant supplies are made available, water is conveyed down the FKC directly to the CV Contractors where an equal reduction is made in the amount of the Delta water supplies allowed to be taken under contract.

Groundwater Resources

WWD WWD is located above the alluvial fan deposits between the eastward dipping marine deposits of the Coast Range and the alluvium filled San Joaquin Valley. The groundwater basin underlying WWD is comprised generally of two water-bearing zones: (1) an upper zone above a nearly impervious Corcoran Clay layer containing the Coastal and Sierran aquifers and (2) a lower zone below the Corcoran Clay containing the sub-Corcoran aquifer. These water-bearing zones are recharged by subsurface inflow primarily from the west and northeast, and percolation of groundwater, and imported and local surface water. The Corcoran Clay separates the upper and lower water-bearing zones in the majority of WWD. (The Corcoran Clay is not continuous in the western portion of WWD.)

Groundwater pumping started in this portion of the San Joaquin Valley in the early 1900's. Prior to delivery of CVP water, the annual groundwater pumpage in WWD ranged from 800,000 to 1,000,000 af during the period of 1950-1968. The majority of this pumping was from the aquifer below the Corcoran Clay, causing the sub-Corcoran groundwater surface to reach the average elevation of more than 150 feet below mean sea level by 1968. The large quantity of groundwater pumped prior to delivery of CVP water caused a significant amount of land subsidence in some areas. Subsidence permanently reduces the aquifer capacity because of the compaction of the water-bearing sediments. WWD has implemented a groundwater management program to reduce the potential for future extreme subsidence.

After delivery of CVP water supplies into WWD began, groundwater pumping declined to about 200,000 af/y, or less, in the 1970's. The reduction in groundwater pumping stabilized groundwater depths and in most portions of WWD, groundwater levels significantly recovered.

During the early 1990's, groundwater pumping greatly increased because of the reduced CVP water supplies caused by an extended drought, and regulatory actions related to the CVPIA,

Endangered Species Act (ESA), and Bay/Delta water quality actions Groundwater pumping quantities are estimated to have reached 600,000 af /y during 1991 and 1992 when WWD received only 25 percent of its contractual entitlement of CVP water. The increase in pumping caused a decline in groundwater levels which have since recovered. Normal or near normal CVP water supplies from 1995 – 1999 have reduced the estimated annual quantity of groundwater pumped to approximately 60,000 af/y, resulting in an increase in water surface elevations. However, since 2000, WWD's water supply has been significantly reduced once again resulting in groundwater pumping to increase to over 200,000 af/y.

Safe yield, or current perennial yield, is the maximum quantity of water that can be annually withdrawn from a groundwater basin over a long period of time (during which water supply conditions approximate average conditions) without developing an overdraft condition. WWD estimates the current safe yield of groundwater underneath the district to be approximately 175,000-200,000 af/y. However, this quantity of groundwater is generally only pumped when other supplemental supplies are not available. This is due to the poorer quality of the groundwater compared to surface water.

WWD supplies groundwater to some district farmers and owns some groundwater wells, with the remaining wells privately owned by water users in WWD.

SCVWD The three major groundwater basins in the SCVWD service area, which are interconnected and occupy nearly 30 percent of the total county area, are Santa Clara Valley, Coyote and Llagas Basins. Groundwater supplies nearly half of the total water used in Santa Clara County and nearly all of that use is in the Coyote and Llagas basins. In 2000, about 165,000 af of groundwater was used. (SCVWD 2003)

Historically, Santa Clara County has experienced as much 13 feet of subsidence caused by excessive groundwater withdrawal. SCVWD was created partially to protect groundwater resources and minimize land subsidence. Subsidence is costly, as it can lead to flooding that damages properties and infrastructure, and saltwater intrusion that degrades groundwater quality. The rate of subsidence slowed in 1967 when imported water was obtained to replenish groundwater supplies. Today, SCVWD reduces the demand on groundwater and minimizes subsidence through conjunctive use of surface water and groundwater. SCVWD monitors land subsidence through benchmark surveying, groundwater elevation monitoring, and data from compaction wells. SCVWD also monitors groundwater levels to ensure that the amount of groundwater being pumped will not cause further subsidence.

Recharge to the groundwater basins consists of both natural groundwater recharge and artificial recharge through local surface and imported water. SCVWD owns and operates more than 30 recharge facilities and six major recharge systems with nearly 400 acres in recharge ponds. These facilities percolate both local and imported water into the groundwater aquifer. SCVWD does not have its own groundwater extraction facilities, but does levy a charge for all groundwater extractions by local retailers and individual users overlying the Santa Clara Valley Groundwater Basin.

SCVWD owns and operates eleven storage reservoirs with a combined storage capacity of 170,000 af. These reservoirs are located on most of the major streams in the SCVWD service area. These reservoirs retain seasonal runoff that can later be released for groundwater recharge along natural channels and in percolation ponds. Local surface water supplies include the stream flows that feed into and out of SCVWD's reservoirs, stream flows that are not captured by reservoirs, and water that flows overland into reservoirs.

City of Tracy The Tracy groundwater storage basin underlying the city is 600 square miles with a safe yield reported to be 9,000 af/y (Tracy 2002.) The City of Tracy pumps an annual maximum of 6,700 af/y. The City of Tracy currently operates nine groundwater wells that pump from the groundwater aquifer. Five of the nine wells are located in the main portion of Tracy. Water from these wells is pumped directly into the primary water main after chlorination and mixed with treated water from the John Jones Water Treatment Plant (JJWTP). The remaining four wells are located at the JJWTP and pump directly into the JJWTP clear wells, where the groundwater is blended with treated surface water after chlorination. Recently, Tracy completed a groundwater study that estimated the operational yield from these wells to be approximately 9,000 af annually. In 2004 and 2005, the annual available groundwater supply was 9,000 af and 6,000 af, respectively. This groundwater supply is indirectly affected by annual rainfall, and a multiple year drought could decrease groundwater supplies. Despite this, groundwater supplies have historically been available at a consistent level. The long-term objectives of Tracy are to utilize groundwater for emergency and peak demand needs and to utilize the aquifer for water storage to improve water quality and increase water system reliability for Tracy's water customers (City of Tracy 2005).

Tracy is participating in a Groundwater Management Plan (GMP) for the groundwater basin in conjunction with agencies that draw water from the aquifer within the DMC's northern service area, including Plain View Water District, Banta-Carbona Irrigation District, Del Puerto Water District, Panoche Water District, West Side Irrigation District, and San Joaquin County. This GMP will help assure that overdrafting of the aquifer, potentially leading to poor water quality or subsidence, does not occur. Tracy has adopted a Groundwater Management Policy to implement the GMP (SLDMWA, 1995).

CV Contractors The CV Contractors are located in the Tulare Lake groundwater hydrologic region. Within the Tulare Lake Region, CV Contractors are located in the Kings, Kaweah, Tule, and northern portion of the Kern County subbasins. The subbasins and the associated water districts are shown in Table 4.

Table 4
Groundwater Subbasins and Water Service Areas in the Cross Valley Contractor Service Area

Groundwater Subbasin	County Service Area/Water/Irrigation District/City
Kings Basin	County of Fresno Hills Valley Irrigation District Tri-Valley Water District
Kaweah Basin	City of Visalia
Tule Basin	Pixley Irrigation District Rag Gulch Water District Lower Tule River Irrigation District
Kern County	Kern-Tulare Water District County of Tulare

Recharge of the semi-confined aquifer in the region is primarily derived from seepage from streams and canals, infiltration of applied water, and subsurface inflow. Precipitation on the valley floor provides some recharge, but only in wet years. Seepage from streams and canals is highly variable depending on annual hydrologic conditions. Recharge to the lower confined aquifer takes place largely through lateral inflow from the semi-confined aquifer.

The usable storage capacity of the Tulare Lake Region is about 28 million af. The most recent perennial yield estimate for groundwater extraction is approximately 4.6 million af for the Tulare Lake Region. This perennial yield is directly dependent upon the amount of recharge received by the groundwater basin, which may be different in the future than it has been in the past.

Groundwater pumping ranged from 1.6 million af in 1922 to 4.7 million af in 1977. Groundwater pumping has been rising steadily through the 1970s, and has varied greatly from year to year depending on hydrologic conditions. The largest year-to-year fluctuation occurred during the 1976 to 1977 drought period. Immediately following the drought, hydrologic wet and above normal conditions for the years 1978 to 1980, resulted in reduced pumping. However, urban growth during the 1980s has contributed to an increase in groundwater use. In addition, increased groundwater pumping in the late-1980s and early-1990s occurred as a result of reduced surface water deliveries to CVP water users due to the imposition of environmental requirements on the operation of surface water facilities, and critically dry hydrologic conditions during the 1987 to

1992 drought period. DWR estimated recent groundwater pumping for 1990 conditions in the Tulare Lake Region at 5.2 million af. This exceeds the estimated perennial yield in the Tulare Lake Region by approximately 630,000 af. All of the subbasins within Tulare Lake Region experience some overdraft.

During the 10-year period from spring 1970 to spring 1980, semi-confined groundwater levels generally dropped in the Tulare Lake Region. In portions of Fresno, Kings, Kern, and Tulare counties, semi-confined groundwater levels dropped as much as 50 feet since spring 1970. The semi-confined aquifer in the Tulare Lake Region showed little change between spring 1980 and spring 1988.

3.1.2 Environmental Consequences

No Action Alternative

Contract provisions under the No Action Alternative stipulate that a tiered pricing structure (80/10/10 tiered pricing) would be applied. Tiered pricing is mandated under the water conservation section of the CVPIA for contracts of more than three years. Due to chronic shortages in CVP contract deliveries in the IRC service areas, modeling predicts that the number of years when tiered pricing is applicable would be limited to approximately 22 or 24 percent of the time (or one year out of four or five) (See Figure 3.1). Based on modeling during the interim renewal contract period there is a relatively low chance that tiered pricing would be in effect. Water supplies do not typically meet demands for most IRC contractors and many IRC contractors are very active on the water market purchasing water supplies. Since much of the IRC contractors' service areas are planted in permanent crops and these contractors have paid more than tiered pricing rates in dry years on the water market to preserve their permanent crop planting investment, increasing water prices due to tiered pricing would not change water use trends.

For those areas where groundwater is of suitable quality and therefore available for irrigation, CVP water is considered to be a supplemental supply. Most agricultural contractors already rely on groundwater supplies and in some cases water transfers to meet on-farm needs. Alternate surface water supplies frequently are expensive. Thus, tiered pricing is unlikely to cause a grower to switch to alternate supplies. Most IRC contractors have the option of switching to groundwater for a limited amount of time. This option would only be utilized (as stated above) if the cost/benefit ratio and the water quality were sufficient to warrant it. Due to continuing overdraft conditions, districts realize that when pumping groundwater above safe yield levels they are mining dry year supplies and that this supply cannot be relied on continually as it is not sustainable.

The CVP supplies for the CV Contractors are unpredictable due to the constraints in deliveries from the Delta. The CV Contractors swap Delta water for Friant water resulting in higher costs

for the CV Contractors. In order for the CV Contractors to obtain their Delta supplies through an exchange with the Friant Division Contractors, the runoff on the San Joaquin River must be sufficient to declare a full Class 1 and a minimum percent of Class 2 supply. If these conditions are not met, the CV Contractors do not have the ability to exchange their CV supplies. These combined conditions result in higher overall costs of water for the CV Contractors compared to neighboring Friant Division Contractors. In dry years the costs for CV Contractors per acre foot may double. This is due to fixed contract costs and is independent of the runoff conditions and hydrology. These fixed contract costs are typically the operations and maintenance, pumping and watermaster costs.

The CV Contractors may switch from surface water to groundwater in certain years because of tiered water pricing. In certain years, the CV Contractors may purchase additional water supplies. Purchased water by the CV Contractors would come from San Luis Reservoir, Delta, or Friant. This does not represent a new water supply, but rather, part of the water supply described in the PEIS. Overall, the diversion from the Delta or Friant would not change as the diversion would remain within the contract total. The total diversions from the Delta or Friant are not anticipated to change with the tiered pricing with no impact anticipated. The CV Contractors receive water physically from Millerton Lake through exchanges (or occasionally via direct delivery). Changes in CVP water use because of this alternative would not affect this exchange.

In summary, the No Action Alternative is not likely to result in the application of tiered pricing during the term of the contracts because of the short duration of interim renewal contracts and the reasonable expectation that sufficient CVP allocation to trigger the tiers would occur in only every fourth or fifth year. Further, even if tiered pricing were to apply, it is unlikely to result in a reduction in use of surface water use, a change in groundwater, or other actions that could affect water resources. The contractors continue to have less water supply (surface water and groundwater) than demanded, conditions that exist notwithstanding their careful water management (i.e., installation and use of highly efficiency irrigation systems). For those reasons, and others discussed in this EA, implementation of the No Action Alternative is not likely to cause an impact to water resources.

Proposed Action

Impacts to water resources associated with the Proposed Action would be comparable to those described under No Action Alternative although tiered pricing provisions are not included in these contracts. Renewal of the interim renewal contracts with only minor administrative changes to the contract provisions would not result in a change in contract water quantities or a change in water use. Water delivery during the interim renewal contract period would not exceed historic quantities. Therefore there would be no effect on surface water supplies or quality.

The renewal of interim contracts delivering the same quantities of water that have historically been put to beneficial use would not result in any growth-inducing impacts. In addition, no substantial changes in growth are expected to occur during the short timeframe of this renewal.

Cumulative Effects

Although, as the areas in or surrounding the IRC service areas grow in population, there would be additional competition for the CVP supplies among the differing purposes of use, the quantity of water provided under these fifteen CVP interim renewal contracts has been and would continue to be at historic levels. No new water supplies are being added to the region. Renewal of the fifteen interim renewal contracts would have no impact on water resources and as such has no cumulative effects.

3.2 Land Use

The following discussion provides information on land uses within each IRC contractor's service area and includes a discussion of current agriculture and future trends in agriculture as applicable. While this information is indicative of land use and growth trends in the IRC service areas, it is not intended to be a comprehensive list of every development project planned or proposed.

3.2.1 Affected Environment

Westlands Water District (WWD)

WWD covers almost 950 square miles of prime farmland between the California Coast Range and the trough of the San Joaquin Valley in western Fresno and Kings Counties. It averages 15 miles in width and stretches 70 miles in length from Mendota on the north to Kettleman City on the south. Interstate 5 is located near the district's western boundary. Nearly all land within the current WWD service area was at one time farmed using groundwater. The first deliveries of CVP water from the SLC to WWD began in 1968.

Currently WWD's district boundaries encompass 604,000 acres with an irrigable acreage of 567,800 acres. More than 60 different crops are grown commercially in WWD. The cropping patterns have changed over the years depending upon water availability, water quality, the agricultural economy and market factors. The acreage trend is toward planting of vegetable and permanent crops while cotton and grain acreage have decreased.

The current population within the WWD is approximately 50,000. The major community entirely within WWD is Huron. Three Rocks and Five Points are smaller communities within WWD. The communities of Firebaugh, Mendota, Kerman, Tranquillity, San Joaquin, Lemoore, and Stratford lie just outside the district's eastern edge.

CVP water in the district is used for both agricultural and M&I uses. The majority of CVP supply is used in agriculture, and of the almost 800 water users in the district, approximately 600 are agricultural users and approximately 180 are M&I users. Unlike many other key growing areas of California, urbanization is not a direct threat to agricultural productivity. The district's M&I deliveries include cities and governmental agencies; however, none of this water is treated by the district before its distribution. Current M&I deliveries are estimated to be approximately 2,000 af/y and account for only a very small percentage of the district's CVP supplies.

The landowners in WWD have farmed their lands for many years. Each year since 1989, additional lands have been set aside over and above normal crop fallowing. The increase in fallowed acres is the direct result of insufficient high quality water to grow the wide variety of crops grown in WWD. In certain water year types, such as dry or critically dry, in combination with regulatory cutbacks for environmental protection of endangered and threatened species, CVP contract water, supplemental water, and good quality groundwater supplies are not always available to meet the irrigation demands. As a result of the shortfall, WWD has experienced severe land fallowing over the past fifteen years. During the period 1991 through 1994, WWD farmers fallowed 125,082, 112,718, 90,413, and 75,732 acres, respectively, of high quality farmland. This forced fallowing resulted in on-farm economic losses ranging from \$136 million to \$225 million (based on \$1,800 gross on-farm income/acre) and the loss of from 757 to 1,281 on-farm jobs (based on 1 position for each 100 acres lost).

In an attempt to continue farming lands within WWD that have been farmed for many decades and to minimize the impacts described above, WWD has developed a program to purchase as much supplemental water as is required or is available at a price suitable for irrigated agriculture. The WWD program supplements its CVP contract supplies with purchases of supplemental water from willing sellers on the spot market.

Farming in WWD has occurred for several decades. During the period 1997 through 2001 (this period selected because the information is available from WWD Website) WWD has averaged 564,138 acres in production and cultivated more than 48 different types of crops. WWD average annual CVP water supply over the same period was 801,688 af/y. This quantity of CVP Contract supply is 69.7 percent of the total entitlement under the CVP water supply contracts.

Santa Clara Valley Water District

The SCVWD, which has the same boundaries as Santa Clara County, covers about 1,300 square miles from San Francisco Bay south to the Pajaro River. SCVWD includes the Santa Clara Valley and portions of the Diablo Range and Santa Cruz Mountains. The Santa Clara Valley runs the entire length of the County from north to south, bounded by the Diablo Range to the east and the Santa Cruz Mountains to the west. The valley is bounded to the northwest by the southern reaches of San Francisco Bay and to the south by the Pajaro River. Most of the development and

water use occurs in the 350 square mile valley floor. SCVWD encompasses 15 cities, including San Jose, Mountain View, Palo Alto, Santa Clara, Sunnyvale, and Gilroy and includes much of the area known as the “Silicon Valley”. Natural waterways in SCVWD include the Pajaro River, Guadalupe River, Coyote Creek, Llag Creek, Uvas Creek, and Los Gatos Creek.

Most development and water use occurs on the 350-square-mile valley floor. The northern part of the valley, north of the Coyote Narrows, is extensively urbanized and houses over 90 percent of the County’s 1.7 million residents and 13 of the County’s 15 cities. The southern part of the valley remains predominately rural with some low-density residential development, with the exception of the cities of Morgan Hill and Gilroy.

City of Tracy

Tracy is a city in San Joaquin County, California of 21 square miles. As of the 2007, Sterling's Bestplaces.net showed total population of 80,000 and a July 1, 2005 Census estimate showed the fast-growing city's population at 75,800. The land use in the entire service area boundary is urban uses.

CV Contractors

The service areas of the eight CV Contractors are located along the eastern edge of the southern San Joaquin Valley, stretching from Fresno County on the north to Bakersfield on the south (Figure 3-1). The CV Contractors are inter-dispersed among the Friant Division Contractors. Surface water has historically been delivered to over 190,000 acres of irrigated farmland within the service areas of the eight CV Contractors and their subcontractors. Water deliveries are used primarily for irrigation, but a small amount of water is used for M&I purposes.

The CV Contractors’ service area produces a diverse range of crops on 161,980 acres agricultural land, grains and field crops, nuts, cotton, and vegetables. Several of the districts were not required to report crop water use information in 1996 due to limited irrigation acreage. From the reported information, alfalfa was the most plentiful crop in the area with over 19 percent of the crop land devoted to its harvest. Lower Tule River Irrigation District led the contractors in acreage for most of its major crops. The District had over 20,000 and 19,000 acres of alfalfa and cotton, respectively. Cotton and corn were planted on over 17 percent and 13 percent, respectively, of CV Contractors agricultural land. Ten other crops each contributed less than 10 percent of the crop land in the service area (Reclamation 1999b).

Within the Kern County portion of the CV Contractors service area, the most abundant of the seven crops were from subtropical orchards, which occupy approximately 8,800 acres. Citrus fruits were the primary crop in the Hills Valley Irrigation District. Located in Fresno County, Hills Valley Irrigation District produces approximately 73 percent of the CV Contractors citrus crop (Reclamation 1999b).

The CV Contractors service area is a significant contributor to the production of several crops in California (See Table 5a and 5b). Of the 706,731 acres of the grapes grown in California, 51 percent are within the three counties that encompass the CV Contractors service area. The Cross Valley unit is also a substantial supplier of cotton (CASS 1995).

Table 5a 2000 Land Use

Crop/Contractor	Kern- Tulare (acres)	Rag Gulch (acres)	KTRG Total (acres)
Alfalfa	0	276	276
Almonds	480	100	580
Pistachios	1,111	0	1,111
Other Deciduous	355	15	370
Citrus	6,945	1,097	8,042
Subtropical	201	0	201
Grapes	4,301	3,815	8,116
Total Irrigated	13,393	5,303	18,696
Non-irrigated	4,792	650	5,442
Total	18,185	5,953	24,138

Table 5b 1999 Land Use

Crop/Contractor	Lower Tule River ID (acres)	Pixley ID (acres)	Hill's Valley ID (acres)
Alfalfa	20,635	11,284	0
Pistachios	3,359	3,219	85
Other Deciduous	3,772	487	56
Citrus	88	0	2,444
Grapes	2,810	4,511	494
Barley	0	0	154
Corn	22,629	0	0
Cotton	19,024	8961	0
Grain	11,118	0	0
Misc.	890	23,559	0
Olive	0	0	120
Pasture	551	1,364	0
Sugar Beet	418	0	0
Truck Crop	1,077	0	0
Total	18,371	53,385	3,353

Source: Reclamation 1999b

Note: Tri-Valley Water District is exempt from reporting crop water needs information.

No data are available for the County of Fresno and the County of Tulare

The service area of the IRCs covers a major portion of three counties (Fresno, Tulare, Kings, Kern, San Joaquin and Santa Clara). The six California counties account for \$9.38 billion in

gross agricultural production (Table 6). The leading agricultural commodities in these counties are grapes, milk, cotton, almonds, and citrus, which accounted for nearly \$4 billion in gross agricultural production in 2002. The leading crops in terms of acreage in the IRC contractors' service areas are alfalfa, corn, cotton, wheat, orchards, and vineyards.

Table 6

Ranking of Cross Valley Contractor Counties by Total Value of Agricultural Production

1998 CA Rank	County	2002 Production (\$1,000)	Number of Farms (# farms)	Land in Farms (acres)	Average size of Farm (acres)	Leading Crops
1	Fresno	2,759,421 (down 1% from 1997)	6,281 (down 11% from 1997)	1,928,865 (down 0.4% from 1997)	307 (up 12% from 1997)	Grapes, poultry, cotton, tomatoes, milk
2	Tulare	2,338,577 (up 20% from 1997)	5,738 (down 8% from 1997)	1,393,456 (up 1% from 1997)	243 (up 12% from 1997)	Forage, corn (for silage) grapes, citrus, almonds, cotton, poultry, milk, pork, beef
4	Kern	2,058,705 (up 4% from 1997)	2,147 (down 9% from 1997)	2,731,341 (down 5 % from 1997)	1,272 (up 5% from 1997)	Almonds, other fruit and nuts, grapes, cattle & calves, vegetables
7	San Joaquin	1,222,454 (up 3% from 1997)	4,026 (down 8% from 1997)	812,629 (down 2% from 1997)	202 (up 7% from 1997)	Fruit, nuts and berries, poultry, corn for grain, milk, vegetables
12	Kings	793,061 (up 14% from 1997)	1,154 (down 5% from 1997)	645,598 (down 2% from 1997)	559 (up 3% from 1997)	Cotton, forage, wheat for grain, corn for silage, vegetables
28	Santa Clara	208,498 (up 7% from 1997)	1,026 (down 17% from 1997)	320,851 (down 2% from 1997)	313 (up 19% from 1997)	Vegetables, fruits, tree nuts and berries, nursery stock

Source: USDA 2002

Table 6 indicates that agricultural production is generally up, the number of farms and acreage in farming is decreasing, but the farm size is increasing.

Water for communities and other M&I users in the IRC contractors' service area comes almost entirely from pumping of groundwater. The quality of the groundwater, for the most part, does not require treatment prior to use. There are no major population centers in the CV Contractors' service area. The only significant use of Cross Valley CVP water for M&I purposes is for the Strathmore Public Utility District (PUD), City of Lindsay, City of Visalia, Styrotek, and County of Fresno. The PUD is under subcontract with Tulare County and supplies the only source of water for the City of Strathmore. The City of Lindsay receives 2,500 af of Friant Class 1 water as a Friant contractor and 50 af as a Tulare County subcontractor. The City of Visalia receives 300 af as a Tulare County subcontractor for golf course irrigation. Styrotek, Inc. receives 45 af for the manufacturing of shipping containers. County of Fresno water (currently approximately 500 af of the 3,000 af under contract) is delivered to homes, the golf course and landscape irrigation at the Brighton Crest development near Millerton Lake.

The conversion of agricultural land to alternate uses is not a significant issue for the IRC Contractors because of the lack of major population centers in their service areas. Exceptions are the cities of Silicon Valley cities, Tracy, Fresno, Tulare, Visalia, and Delano that have experienced rates of growth similar to the rest of the State of California. Historically, agricultural lands receiving CVP water that are converted to urban uses have not continued to use CVP water with the exception of Santa Clara County and the City of Tracy. The land use change generally results in a change in water supply, from agricultural to urban community water system. Eastside groundwater is generally preferred for a community water system. The CVP water is generally reallocated to other agricultural lands in the district or used to recharge groundwater. CV Contractor water supplies to these municipalities either do not contribute to the community water supply or are very minor portions of their water supplies. The subdivisions in Millerton New Town and Brighton Crest are other exceptions where County of Fresno supplies provide the entire water supply. Expansion of the County of Fresno's service area has been analyzed under separate environmental documentation and is not part of this IRC EA. Any future service area expansion will also be analyzed separately.

3.2.2 Environmental Consequences

No Action Alternative

The renewal of contracts with only minor administrative changes to the contract provisions would not provide for additional water supplies that could act as an incentive for increased acreage of agricultural production or municipal development. Generally, lands within the IRC contractor service areas that are productive are farmed or have maximized M&I development with the CVP water available. Uncertainty of supply due to the short-term duration of the renewal could act as a disincentive for farmers to preserve their lands from urban developments.

However, most areas within the IRC contractor service areas are not near current M&I growth. Also for those limited areas that are near such growth, the short terms of the interim renewal contracts do not provide sufficient certainty to permit the M&I development of land now in agricultural production, meaning that the No Action Alternative is not likely to have impacts on conversion of irrigated land to other uses.

Contract provisions stipulating the pricing structure for delivered water (80/10/10 tiered pricing) are not likely to result in changes in water use as the districts within the IRC contractor service areas are water short even in high allocation years. Water short farmers have demonstrated via purchases on the water market a willingness to pay tiered pricing rates. Land would continue to be used for existing purposes. Also because this is an interim renewal process, it is unlikely that the uncertainty of the water supply would result in any changes in agricultural practices that would influence land use.

Proposed Action

Impacts to land use associated with the Proposed Action would be comparable to those described under the No Action Alternative. Tiered pricing with its potential price increases is not included as part of the Proposed Action. The lack of tiered pricing would have no impact on land use. It is possible that conversion from agricultural uses to M&I uses would occur during the term of the interim renewal contracts, but if such conversions occur it would not be a result of contract renewal. The pressures to convert are the same pressures that would have existed with the previous expiring interim contracts and with the No Action Alternative. Local land use agencies have the oversight of these actions. It is unlikely that significant conversions to M&I uses would occur during the term of the interim renewal contract or that the short-term water supply under that contract would contribute to any such conversion. Since contracts are mandated to be renewed for the quantity of water that can be put to beneficial use, the water supply would be available for either purpose of use and the interim renewal of contracts would not affect the potential M&I conversion.

The IRC would continue to support current land uses and no conversion of agricultural lands currently in production would convert to urban uses during the term of the IRCs. The Proposed Action will have no effect on land use.

Cumulative Effects

Since the alternatives have no impact on land use, they also have no cumulative effects.

3.3 Biological Resources

3.3.1 Affected Environment

This section analyzes the potential impacts to listed (under the federal Endangered Species Act) and non-listed species and habitats with the potential to occur in the study area. The study area is located in the San Joaquin Valley and includes those portions of San Joaquin, Fresno, Kings, Tulare, Santa Clara and Kern counties comprising the service areas of the IRC Contractors.

The following list (See Table 7) was obtained on November 30, 2007, by accessing the U.S. Fish and Wildlife Database: http://www.fws.gov/pacific/sacramento/es/spp_lists/auto_list.cfm. The list is for the following USGS 7½ minute quadrangles (quads): Deepwell Ranch, McFarland, North of Oildale, Wasco NW, Ducor, Sausalito School, Delano East, Richgrove, Pixley, Alpaugh, Allensworth, Hacienda Ranch NE, Hacienda Ranch, Lindsay, Cairns Corner, Woodville, Porterville, Tulare, Taylor Weir, Tipton, Corcoran, Westhaven, Avenal, Coalinga, Slack Canyon, Ivanhoe, Exeter, Goshen, Visalia, Vanguard, Five Points, Tres Pecos Farms, Domengine Ranch, Stokes Mtn, Orange Cove North, Wahtoke, San Joaquin, Helm, Coit Ranch, Monocline Ridge, Friant, Firebaugh, Broadview Farms, Mariposa Peak, Three Sisters, San Felipe, Chittenden, Watsonville East, Crevison Peak, Pacheco Pass, Mustang Peak, Mississippi Creek, Gilroy Hot Springs, Pacheco Peak, Mt. Sizer, Morgan Hill, Mt. Madonna, Gilroy, Santa Teresa Hills, Los Gatos, Laurel, Loma Prieta, Castle Rock Ridge, Mt. Boardman, Mt. Stakes, Eylar Mtn, Mt. Day, Lick Observatory, Isabel Valley, Calaveras Reservoir, Milipitas, San Jose West, San Jose East, Mountain View, Palo Alto, Cupertino, Tracy, Union Island. (USFWS 2007).

TABLE 7: FEDERAL STATUS SPECIES ON QUADS LISTED ABOVE

<u>Common Name</u>	<u>Species Name</u>	<u>Fed Status</u> ¹	<u>ESA</u> ²	<u>Summary basis for ESA determination</u>
Blunt-nosed leopard lizard	<i>Gambelia silus</i>	E	NLAA	No changes in land uses and no new construction or facilities through the duration of the IRC
Conservancy fairy shrimp	<i>Branchinecta conservatio</i>	E	NLAA	No changes in land uses and no new construction or facilities through the duration of the IRC
California tiger salamander, Central DPS	<i>Ambystoma californiense</i>	T	NLAA	No changes in land uses and no new construction or facilities through the duration of the IRC
California tiger salamander – Critical Habitat	<i>Ambystoma californiense</i>	CH	NLAA	No changes in land uses and no new construction or facilities through the duration of the IRC

¹ E: Listed as Endangered under the federal ESA. T: Listed as Threatened under the federal ESA. CH: Critical habitat designated under the federal ESA.

² ESA effect determination. NE: No effect to the species or critical habitat. NLAA: Not likely to adversely affect the species or critical habitat

California red-legged frog	<i>Rana aurora draytonii</i>	T	NLAA	No changes in land uses and no new construction or facilities through the duration of the IRC
California red-legged frog - Critical Habitat	<i>Rana aurora draytonii</i>	CH	NLAA	No changes in land uses and no new construction or facilities through the duration of the IRC
Central Valley steelhead	<i>Oncorhynchus mykiss</i>	T	NE	Effects to this species are operational, and will be addressed in the OCAP BO
Central Valley steelhead - Critical Habitat	<i>Oncorhynchus mykiss</i>	CH	NE	Effects to this critical habitat are operational, and will be addressed in the OCAP BO
Central California Coastal steelhead	<i>Oncorhynchus mykiss</i>	T	NE	Effects to this species are operational, and will be addressed in the OCAP BO
Central California Coastal steelhead - Critical Habitat	<i>Oncorhynchus mykiss</i>	CH	NE	Effects to this critical habitat are operational, and will be addressed in the OCAP BO
South Central Valley steelhead	<i>Oncorhynchus mykiss</i>	T	NE	Effects to this species are operational, and will be addressed in the OCAP BO
Delta smelt	<i>Hypomesus transpacificus</i>	T	NE	Effects to this species are operational, and will be addressed in the OCAP BO
Delta smelt - Critical Habitat	<i>Hypomesus transpacificus</i>	CH	NE	Effects to this critical habitat are operational, and will be addressed in the OCAP BO
Green sturgeon	<i>Acipenser medirostris</i>	T	NE	Effects to this species are operational, and will be addressed in the OCAP BO
Tidewater goby	<i>Eucyclogobius newberryi</i>	E	NE	The species is outside of the action area
Coho salmon	<i>Oncorhynchus kisutch</i>	E	NE	Effects to this species are operational, and will be addressed in the OCAP BO
Central Valley spring-run Chinook salmon	<i>Oncorhynchus tshawytscha</i>	T	NE	Effects to this species are operational, and will be addressed in the OCAP BO
Winter-run Chinook salmon – Sacramento River	<i>Oncorhynchus tshawytscha</i>	E	NE	Effects to this species are operational, and will be addressed in the OCAP BO
Fresno kangaroo rat	<i>Dipodomys nitratooides exilis</i>	E	NE	Species is presumed extirpated in the action area
Fresno kangaroo rat - Critical Habitat	<i>Dipodomys nitratooides exilis</i>	CH	NE	Critical habitat is outside of the action area
Giant kangaroo rat	<i>Dipodomys ingens</i>	E	NLAA	No changes in land uses and no new construction or facilities through the duration of the IRC
Tipton kangaroo rat	<i>Dipodomys nitratooides nitratooides</i>	E	NLAA	No changes in land uses and no new construction or facilities through the duration of the IRC
Salt marsh harvest mouse	<i>Reithrodontomys raviventris</i>	E	NE	Species habitat not in land types affected by the contract water

Marbled murrelet	<i>Brachyramphus marmoratus</i>	T	NE	The species is outside of the action area
Marbled murrelet – Critical habitat	<i>Brachyramphus marmoratus</i>	CH	NE	Critical habitat is outside of the action area
Western snowy plover	<i>Charadrius alexandrinus nivosus</i>	T	NE	Species habitat not in land types affected by the contract water
California condor	<i>Gymnogyps californianus</i>	E	NE	The species is outside of the action area
California clapper rail	<i>Rallus longirostris obsoletus</i>	E	NE	Species habitat not in land types affected by the contract water
California least tern	<i>Sternula antillarum brownii</i>	E	NLAA	CVP water is unlikely to result in changes to the evaporation ponds used by the species
Least Bell's vireo	<i>Vireo bellii pusillus</i>	E	NLAA	No changes in land uses and no new construction or facilities through the duration of the IRC
Giant garter snake	<i>Thamnophis gigas</i>	T	NLAA	No discharge from WWD, species not present in remainder of action area
Alameda whipsnake	<i>Masticophis lateralis euryxanthus</i>	T	NLAA	Species is outside the action area, critical habitat is slightly within SCVWD, no changes in land uses and no new construction or facilities through the duration of the IRC
Alameda whipsnake - Critical Habitat	<i>Masticophis lateralis euryxanthus</i>	CH	NLAA	No changes in land uses and no new construction or facilities through the duration of the IRC
San Joaquin kit fox	<i>Vulpes macrotis mutica</i>	E	NLAA	No changes in land uses and no new construction or facilities through the duration of the IRC
Bay checkerspot butterfly	<i>Euphydryas editha bayensis</i>	T	NLAA	No changes in land uses and no new construction or facilities through the duration of the IRC
Bay checkerspot butterfly - Critical Habitat	<i>Euphydryas editha bayensis</i>	CH	NLAA	No changes in land uses and no new construction or facilities through the duration of the IRC
San Bruno elfin butterfly	<i>Callophrys mossii bayensis</i>	E	NE	The species is outside of the action area
Vernal pool tadpole shrimp	<i>Lepidurus packardii</i>	E	NLAA	No changes in land uses and no new construction or facilities through the duration of the IRC
Vernal pool tadpole shrimp - Critical Habitat	<i>Lepidurus packardii</i>	CH	NE	The critical habitat is outside of the action area
Valley elderberry longhorn beetle	<i>Desmocerus californicus dimorphus</i>	T	NE	The species is outside of the action area
Vernal pool fairy shrimp	<i>Branchinecta lynchi</i>	T	NLAA	No changes in land uses and no new construction or facilities through the

duration of the IRC				
Vernal pool fairy shrimp - critical habitat	<i>Branchinecta lynchi</i>	CH	NLAA	No changes in land uses and no new construction or facilities through the duration of the IRC
Hartweg's golden sunburst	<i>Pseudobahia bahiifolia</i>	E	NE	The species is outside of the action area
Fleshy Owl's Clover	<i>Castilleja campestris</i> spp. <i>succulenta</i>	T	NE	The species is outside of the action area
Fleshy Owl's Clover- Critical Habitat	<i>Castilleja campestris</i> spp. <i>Succulenta</i>	CH	NE	The critical habitat is outside of the action area
Tiburon paintbrush	<i>Castilleja affinis</i> spp. <i>neglecta</i>	E	NLAA	No changes in land uses and no new construction or facilities through the duration of the IRC
San Joaquin Valley Orcutt Grass - Critical Habitat	<i>Orcuttia inaequalis</i>	CH	NE	The critical habitat is outside of the action area
Large -flowered fiddleneck	<i>Amsinckia grandiflora</i>	E	NE	The species is outside of the action area
Coyote ceanothus	<i>Ceanothus ferrisae</i>	E	NLAA	No changes in land uses and no new construction or facilities through the duration of the IRC
Hoover's spurge	<i>Chamaesyce hooveri</i>	T	NLAA	No changes in land uses and no new construction or facilities through the duration of the IRC
Hoover's spurge - Critical Habitat	<i>Chamaesyce hooveri</i>	CH	NLAA	No changes in land uses and no new construction or facilities through the duration of the IRC
Springville clarkia	<i>Clarkia springvillensis</i>	T	NE	The species is outside of the action area
Santa Clara Valley dudleya	<i>Dudleya setchellii</i>	E	NLAA	No changes in land uses and no new construction or facilities through the duration of the IRC
Santa Cruz tarplant	<i>Holocarpha macradenia</i>	T	NE	The species is outside of the action area
Santa Cruz tarplant - Critical Habitat	<i>Holocarpha macradenia</i>	CH	NE	Critical habitat outside of action area
Contra Costa goldfields	<i>Lasthenia conjugens</i>	E	NLAA	No changes in land uses and no new construction or facilities through the duration of the IRC
Contra Costa goldfields - Critical Habitat	<i>Lasthenia conjugens</i>	CH	NE	The critical habitat is outside of the action area
San Joaquin woolly-threads	<i>Monolopia congdonii</i>	E	NLAA	Urban areas within WWD (Avenal and Coalinga) are not likely to expand during the IRC period; WWD water would not support such expansion

regardless				
Bakersfield cactus	<i>Opuntia basilaris</i> var. <i>treleasei</i>	E	NE	The species is outside of the action area
San Joaquin adobe sunburst	<i>Pseudobahia peirsonii</i>	T	NLAA	No changes in land uses and no new construction or facilities through the duration of the IRC
Metcalf Canyon jewelflower	<i>Streptanthus albidus</i> ssp. <i>albidus</i>	E	NLAA	No changes in land uses and no new construction or facilities through the duration of the IRC
California sea blite	<i>Suaeda californica</i>	E	NLAA	No changes in land uses and no new construction or facilities through the duration of the IRC

Baseline information on biological resources in the IRC Contractors' service areas study area was compiled primarily from literature and information gathered from water district general managers and staff. Data sources included appendices to the CVPIA PEIS (Reclamation 1997b, 1997e), Draft EA for Eastside/Westside Water Transfer/Exchange (Tetra Tech 2000), BO on Operation of the CVP and Implementation of the CVPIA (USFWS 2000), Biological Opinion on the Operations and Maintenance Program Occuring on Bureau of Reclamation Lands Within the South-Central California Area Office (USFWS 2005), A Guide to Wildlife Habitats of California (Mayer and Laudenslayer 1988), vegetation categories derived from CALVEG data (Matyas and Parker 1980), the Grassland Bypass Project EIS/EIR (Reclamation 2001b), the California Department of Fish and Game (CDFG) California Natural Diversity Database, and the California Native Plant Society's Inventory of Rare and Endangered Vascular Plants of California (California Native Plant Society 2000).

Appendix E presents a list of federal and California special-status species that are known to inhabit the above listed quads.

The existing affected environment conditions are essentially the same as those described in the initial 1994 EA and subsequent Supplemental EAs. Consistent with existing CVP and CVPIA BOs, Reclamation implemented a Central Valley Habitat Monitoring Program (CVHMP) in 1999 to map and monitor habitat inside CVP water service areas. The CVHMP uses satellite imagery and aerial photography to identify natural habitats and monitor habitat changes that may be occurring inside CVP water service areas. The CVHMP database benchmark year is 1993, and that 1993 data reflects land-use and habitat conditions described in the affected environment sections of the 1994 EA (Reclamation 1994). Comparisons of the 1993 benchmark-year to recent available satellite imagery (2000) show that habitat conditions inside the IRC water service areas have changed very little since the first IRC environmental analysis in 1994, which further supports conclusions presented in the 2004, 2002, 2001, and 2000 Supplemental IRC EAs. Summaries of land-use and habitat changes inside each IRC service area between 1993 and 2000 are presented in Appendix C. The CVHMP has obtained 2005 satellite-imagery of the

Central Valley, and is analyzing land use changes that may have occurred inside CVP contract service areas between 2000 and 2005. The 2005 analysis is expected to be completed in next year.

Documents Addressing Potential Impacts to Listed Species Associated with Deliveries to the IRC Contractors' Service Areas

Reclamation and the DWR are currently cooperating in conducting endangered species consultations to address the combined long-term operations of the CVP and SWP, as part of the OCAP. Reclamation is the lead federal agency and DWR is the lead state agency for these consultations. Reclamation is consulting with the U.S. Fish and Wildlife Service (FWS) and the National Oceanic and Atmospheric Administration (NOAA), National Marine Fisheries Service (NMFS) regarding potential operational impacts to species listed under the federal ESA. DWR is consulting with CDFG regarding potential operational impacts to species listed pursuant to the California Endangered Species Act (CESA). The OCAP is a detailed analysis and explanation of the criteria and procedures for conducting combined CVP and SWP operations.

The fifteen interim water service contracts contain provisions that allow for adjustments resulting from court decisions, new laws, and from changes in regulatory requirements imposed through re-consultations. Accordingly, to the extent that additional restrictions are imposed on CVP operations to protect threatened or endangered species, those restrictions would be implemented in the administration of the fifteen interim water service contracts considered in this EA. As a result, the IRCs analyzed would conform to any applicable requirements imposed under the federal ESA or other applicable environmental laws.

In addition, Reclamation has consulted under the ESA on the *Operations and Maintenance Program Occurring on Bureau of Reclamation Lands within the South-Central California Area Office*, resulting in a BO issued by the FWS (USFWS 2005) on February 17, 2005 (1-1-04-0368). The BO considers the effects of routine operation and maintenance of Reclamation's facilities used to deliver water to the study area, as well as certain other facilities within the jurisdiction of the South-Central California Area Office, on California tiger salamander, vernal pool fairy shrimp, valley elderberry longhorn beetle, blunt-nosed leopard lizard, vernal pool tadpole shrimp, San Joaquin wooly-threads, California red-legged frog, giant garter snake, San Joaquin kit fox, and on proposed critical habitat for the California red-legged frog and California tiger salamander.

Land Use and Natural Communities Inside and Within Two Miles of WWD's Service Area

Immediately west of the WWD service area lies the Diablo Range of the California Coast Range. The area west of the northern portion of WWD service area includes a portion of the San Luis Reservoir, O'Neil Forebay, and Los Banos Reservoir near Santa Nella in Merced County. From here, the western portion follows foothills through portions of the Panoche Hills and Monocline

Ridge in western Fresno County. Other than the open water of the reservoirs, this area along most of the western boundary is primarily composed of open areas of annual grasses with linear riparian communities along intermittent streams. Further south, the land adjacent to WWD's service area includes grasslands and portions of coastal scrub, chaparral, and oak woodland communities at the higher elevations of hills west of Coalinga. The southern portion of WWD's service area includes a mix of oil development, agricultural lands, and annual grasses on the Kettleman Hills near Avenal and Bakersfield in western Kings County and Kern County.

Immediately southeast of WWD's service area lies the north shore of what was historically the open water and tule marshes of Tulare Lake. The area includes some riparian and wetland areas but is largely dominated by irrigated agriculture, primarily row crops. Going north, the area east of the San Luis Unit includes the historical marshlands of the Fresno Slough, which were created by the channelization of the Fresno Slough and flood control operations of the Kings River from its departure through the area of Tranquility and the Mendota Wildlife Area. Most of these lands are used for irrigated agriculture, but there are also areas of restored and conserved wetlands such as the Mendota Wildlife Area. From there, the eastern portion of WWD's service area extends northwest through Mendota and the Mendota Pool area along the San Joaquin River.

Land Use and Natural Communities Within WWD's service area WWD's service area encompasses approximately 604,000 acres of land situated on arid plains and low hills in the San Joaquin Valley. It lies between the foothills of the Sierra Nevada Range on the east and the foothills of the Diablo Range on the West. It lies north and west of the Tulare Lake bed and just south of the Grasslands wetland areas on the west. At present, approximately 14 percent of WWD's service area land area remains undeveloped. Most remaining undeveloped lands are along the foothills of the Diablo Range at the western edge of WWD's service area. Approximately 71 percent of undeveloped lands are in the hills surrounding the Pleasant Valley near Coalinga and the Kettleman Hills near Avenal. The remaining 29 percent is in the northern portion of WWD's service area near Santa Nella and various small parcels throughout WWD's service area (DWR 2004).

Development of land within WWD's service area began many decades ago, and is continuing through the present. Undeveloped lands on the valley floor are now restricted to small habitat patches that are fragmented and isolated from each other. As a result of the conversion of natural habitats, many species have been displaced or extirpated from the region. Most of the species that occurred historically are now restricted to habitat patches that are fragmented and isolated, making it difficult for viable populations to exist. Some species have adapted to portions of the new landscape and are able to maintain populations. However, as a result of the largely fragmented habitats, the potential for expansion or growth of these populations is greatly reduced. Because of the reduction in habitat available to these species, remnants of habitat such

as wetlands and riparian forests are increasingly valuable and important to resident and migratory wildlife species.

Fisheries On the arid west side of the San Joaquin River basin, relatively small intermittent streams drain the Coast Range but rarely reach the San Joaquin River. On the east side, numerous streams and three major rivers drain the western Sierra Nevada and provide flow to the San Joaquin River. The lower San Joaquin River is adjacent to the study area along portions of the eastern boundary beginning at Millerton Reservoir and continuing past the Mendota Pool.

Historic fishery resources within the study area were different from fishery resources present today (Reclamation 1997e). Many native species have declined in abundance and distribution, and several introduced species have become well-established. The major factors producing changes in aquatic habitat within the project area are habitat modification, species introduction, and over fishing of fishery resources that originate in the project area (Moyle 2002). These factors and anthropogenic activities within the project area have adversely affected the fisheries resources in the area.

The San Joaquin River in the vicinity of WWD's service area is characterized as a warm-water, Deep-Bodied Fishes Zone composed of a variety of habitats, and supports steelhead trout and Chinook salmon to the barrier at the Merced River in years with sufficient water flows and timing. The natural habitat and water quality of the River and Mud and Salt Sloughs have been highly modified by the addition of canals, agricultural drainwater, and seasonal regulation of main stem River flows.

Little information exists about fishery resources in water bodies located within WWD's service area. The westside intermittent streams located within the project area are not known to support anadromous fish and are unlikely to support populations of resident fish because of their hydrologic conditions, which are often characterized by low (or no) flows, increased temperatures, and reduced water quality. The numerous water conveyance facilities and water supply and drainage canals could and do support warm-water fish, such as bass, crappie, sunfish, catfish, and shad.

Laboratory and field research has demonstrated that elevated waterborne and/or dietary concentrations of several trace elements in the San Joaquin Valley drainwaters are toxic to fish and wildlife. Selenium is the most toxic of these; other constituents include arsenic, boron, chromium, mercury, molybdenum, and salts (SJVDP 1990). Elevated selenium levels have been detected in a wide variety of fish in WWD's service area, including Chinook salmon and striped bass (Hamilton et al. 1986; Saiki and Palawski 1990). The bio-accumulative food chain threat of selenium contamination on fish and aquatic birds has also been well documented.

NMFS has designated critical habitat within the San Joaquin River system for listed salmonid species (70 FR 52487).

Vegetation and Wildlife This section discusses land uses and land cover types within WWD's service area. It also includes a discussion of vegetation types, plants, and animals located in and adjacent to the study area. In addition to the natural, semi-natural and agricultural communities discussed below, other uses in WWD's service area include land developed for industrial and transportation uses, mixed urban uses, residential and commercial development, and land that is barren.

Wetlands Available wetland habitats in the two-mile buffer area around the WWD study area include both riparian corridors and the more classic wetland habitat with emergent vegetation associated with the San Joaquin River.

Palustrine wetlands include any non-tidal wetlands not classified as lacustrine, estuarine or riverine and having no deepwater habitat associations. In the San Joaquin Valley, this classification includes both permanent and seasonal fresh emergent wetlands.

In the San Joaquin Valley, the topography is generally level or gently rolling. Wetlands follow basin contours or occur in conjunction with riverine or lacustrine environments. Subtypes of permanent emergent wetlands are generally classified by species presence and/or their association with specific terrestrial habitats. Because emergent wetlands are typically inundated for most of the year, the roots of vegetation have evolved to thrive in an anaerobic environment. Characteristic floral species are erect, rooted hydrophytes dominated by perennial monocots such as the common tule, cattail, various sedges, and spike rushes. Permanent wetland habitat can occur on virtually any slope or exposure that provides a saturated depression.

In the San Joaquin Valley, seasonal fresh emergent wetlands most often occurred in grasslands and saltbush areas. A broad description of a seasonal wetland would include any area that ponds water during the wet season. Vegetation may vary from Italian rye grass in the driest areas to spike rush in the wettest. Cattail species are conspicuously absent from seasonal wetlands as they are indicative of permanent wetlands. These wetlands were historically composed of vast areas that, although inundated only periodically, provided crucial seasonal habitat for many wildlife species, most conspicuously for waterfowl and other migrants. They can occur as a subtype in almost any community.

Very little area in WWD's service area (0.02 percent) is mapped as seasonal emergent wetlands. Wetlands occur primarily as small parcels along the eastern edge of the WWD nearest to historical marshlands along Fresno Slough. A small area of wetlands is also mapped in an area of riparian woodland habitat maintained at the O'Neill Forebay Wildlife Area. A large mosaic of

seasonal wetlands and grasslands occurs northeast of WWD's service area and near the San Luis National Wildlife Refuge Complex.

Riparian Communities Riparian communities develop in the floodplains of low-gradient rivers and streams. They occur adjacent to freshwater reaches of permanent and seasonal watercourses. Typically, riparian land cover occurs as narrow bands of vegetation immediately adjacent to watercourses. In and near WWD's service area, tree species include non-native salt cedar and cottonwood. Shrub cover includes riparian scrub vegetation, which includes several community types dominated by different shrub species, including buttonbush scrub, elderberry savanna, great valley mesquite scrub, and great valley willow scrub (FWS 1998).

Approximately 0.1 percent of WWD's service area is mapped as riparian communities. This is primarily riparian scrub with intermittent cottonwoods and non-native salt cedar along seasonal streams that flow into WWD's service area from the Diablo Range, such as Los Banos Creek, Little Panoche Creek, Panoche Creek, Cantua Creek, Las Gatos Creek, Warthen Creek, and Zapato Chino Creek.

Water Open water in WWD's service area is primarily in reservoirs and water conveyance facilities. Streams in WWD's service area originate on the Coast Range and typically will carry water for a few hours or days after a rainfall event. Historically, the water from these streams would spread out over the plain of the western San Joaquin Valley and would seldom reach the San Joaquin River (Mead 1901). With the exception of heavy rainfall events, open water covers less than 1 percent of the study area and is nearly all found in the SLC, parts of O'Neill Forebay, San Luis Reservoir and various other canals.

Riverine habitats consist of perennial or intermittently flowing rivers and streams. The San Joaquin River with its major tributaries and sloughs is the major riverine habitat within two miles of the study area. In WWD's service area itself, there are numerous small and intermittent streams occur along. Riverine habitats commonly are associated with adjacent riparian and wetland habitat types and are valuable to wildlife as well as aquatic species for cover, foraging, and travel corridors.

Freshwater emergent wetlands are among the most productive wildlife habitats in California, providing food, cover, and water for over 160 species of birds, and numerous species of mammals, reptiles, and amphibians (Mayer and Laudenslayer 1988). Common plant species found in freshwater emergent wetlands habitats include big leaf sedge, baltic rush, and redroot nutgrass around the upper margins; saltgrass in more alkali sites; and common cattail, bulrushes, and arrowhead in the wetter sites.

Vernal pools are a rare and protected form of seasonal freshwater emergent wetlands found only within grassland habitats. The pools are shallow depressions filled with water from winter storms that subsequently dry up during spring or early summer. A unique assemblage of special status plant and invertebrate species is associated with the ephemeral pools, with the salinity, alkalinity, and the length of time that water persists generally determining plant species composition. Within the general area, vernal pool occurrences are concentrated east of the San Joaquin River.

Unlined canals and drains provide marginal wetland and aquatic habitat throughout large portions of both the two-mile region and the study area. The quality of this habitat varies depending on the degree and frequency of maintenance, water quality, habitat type of adjacent lands, consistency of flows, and other factors. Some reaches of delivery canals and drains contain emergent and aquatic plants such as bulrushes, cattails, and pondweeds, as well as undesirable invasives such as perennial pepperweed. Larger canals and drains may support warmwater fisheries. Common fish species potentially present in canal fisheries include largemouth and striped bass, threadfin shad, Sacramento blackfish, bluegill, white catfish, black bullhead, black crappie, green sunfish, carp, goldfish, and mosquitofish.

Ruderal or Unclassified Rangeland This common habitat type is always associated with disturbed lands. It can occur as large areas (e.g., abandoned croplands) or as small inclusions within other terrestrial communities. These lands make up approximately 3.5 percent of the study area (University of California-Santa Barbara 1996; California State University-Stanislaus, Endangered Species Recovery Program 2004). In the study area, this habitat is most typically associated with road and utility rights-of-way (ROW's), field borders, ditch ROW's, and abandoned fields. Vegetation usually consists of scattered native and nonnative shrubs, generally with nonnative herbaceous species dominating the understory. Habitat value is typically low for most terrestrial wildlife species, although the interconnecting matrix of ruderal vegetation associated with farm roads, field margins, irrigation ditches, and fencelines in the San Joaquin Valley provides wildlife movement corridors in the otherwise agriculture-dominated landscape.

Idle/Retired Farmland Lands of this category are similar to abandoned farmlands in the ruderal or unknown rangeland category, but with less time out of agricultural production. Similarly, the habitat value of these lands may vary with land management practices.

Shrub and Brush, Herbaceous, and Mixed Rangeland Rangelands are classified into three basic types. The shrub and brush rangeland is dominated by woody vegetation and is typically found in arid and semiarid regions. Mixed rangelands are ecosystems where more than one-third of the land supports a mixture of herbaceous species and shrub or brush rangeland species. Herbaceous rangelands are dominated by naturally occurring grasses and forbs, which are typically grazed by livestock, as well as some areas that have been modified to include grasses

and forbs as their principal cover. Rangelands are, by definition, areas where a variety of commercial livestock are actively maintained. Rangelands may occur within the 2-mile radius of WWD's service area along the western boundary and around the northernmost area of the Unit. Within the rangeland community, a number of herbivorous animals such as grasshoppers, jackrabbits, and kangaroo rats compete with livestock for forage.

Agricultural Habitat The most dominant habitat in WWD's service area is agricultural land, including active, temporarily fallowed, and retired croplands, and orchards/vineyards. Croplands in the San Joaquin Valley are generally concentrated along the central, flatter portion of the valley, with orchards and vineyards extending into the western foothills. The mix of crops varies from year to year depending on economic factors and predicted water supplies. Cotton and row vegetables historically have been the dominant crops, but current trends are toward increasing acreages of higher-value permanent crops in WWD's service area. Harvesting practices, crop selections, the proximity and amount of nearby undisturbed vegetation, and the types of food and foraging cover provided by the crops all affect the value of agricultural land as wildlife habitat. Some row and grain crops provide foraging habitat for hawks and migrating and wintering waterfowl.

Although natural communities provide the highest value for wildlife, many of these historical natural habitats have been largely replaced by agricultural habitats with varying degrees of benefits to wildlife. The intensive management of agricultural lands, including soil preparation activities, crop rotation, grazing, and the use of chemicals, effectively reduces the value of these habitats for wildlife. Many species of rodents and birds have adapted to croplands, which often requires that the species be controlled to prevent extensive crop losses. This may require intensive management and often the use of various pesticides. Rodent species that are known to forage in row crops include the California vole, deer mouse, and the California ground squirrel. These rodent populations are preyed upon by Swainson's hawks, red-tailed hawks, and black-shouldered kites. Orchards, vineyards, and cotton crops generally provide relatively low-quality wildlife habitat because the frequent disturbance results in limited foraging opportunities and a general lack of cover. Pasture and row crops provide a moderate-quality habitat with some limited cover and foraging opportunities.

Pasture habitat can consist of both irrigated and unirrigated lands dominated by perennial grasses and various legumes. The composition and height of the vegetation, which varies with management practices, also affects the wildlife species composition and relative abundance. Irrigated pastures may offer some species habitats that are similar to those of both seasonal wetlands and unirrigated pastures. The frequent harvesting required, which reduces the overall habitat quality for ground-nesting wildlife, effectively reduces the value of the habitat. Irrigated pastures provide both foraging and roosting opportunities for many shorebirds and wading birds, including black-bellied plover, killdeer, long-billed curlew, and white-faced ibis. Unirrigated

pastures, if lightly grazed, can provide forage for seed-eating birds and small mammals. Ground-nesting birds, such as ring-necked pheasant, waterfowl, and western meadowlark, can nest in pastures if adequate vegetation is present. Small mammals occupying pasture habitat include California voles, Botta's pocket gophers, and California ground squirrels. Raptors including red-tailed hawks, white-tailed kites, and prairie falcons prey upon the available rodents. In areas where alfalfa or wild oats have been recently harvested, the large rodent populations can provide high-quality foraging habitat for raptors.

The habitat value in cropland is essentially regulated by the crop production cycle. Most crops in California are annual species and are managed with a crop rotation system. During the year, several different crops may be produced on a given parcel of land. Many species of rodents and birds have adapted to croplands, which often requires that the species be controlled to prevent extensive crop losses. This may require intensive management and often the use of various pesticides. Rodent species that are known to forage in row crops include the California vole, deer mouse, and the California ground squirrel. These rodent populations are preyed upon by Swainson's hawks, red-tailed hawks, and black-shouldered kites.

Orchard-vineyard habitat consists of cultivated fruit or nut-bearing trees or grapevines. Orchards are typically open, single-species, tree-dominated habitats and are planted in a uniform pattern and intensively managed. Understory vegetation is usually sparse, but grasses or forbs are allowed to grow between rows to reduce erosion in some areas. In vineyards, the rows under the vines are often sprayed with herbicides to prevent the growth of herbaceous plants.

Wildlife species associated with vineyards include the deer mouse, California quail, opossum, raccoon, mourning dove, and black-tailed hare. Nut crops provide food for American crows, scrub jay, northern flicker, Lewis' woodpecker, and California ground squirrel. Fruit crops provide additional food supplies for yellow-billed magpies, American robin, northern mockingbird, black-headed grosbeak, California quail, gray squirrel, raccoon, and mule deer. Loss of fruit to grazers often results in growers using species management programs to force these species away from the orchards.

Alkali Desert Scrub, also called San Joaquin Saltbush or Chenopod Scrub Relict stands of this shrub-dominated habitat type are widely scattered throughout the San Joaquin Valley, but are more commonly found in Tulare Basin, south of the project area. Alkali scrub occurs in areas characterized by impeded drainage with fine-textured, alkaline, or saline soils. Vegetation is generally dominated by salt-tolerant shrub and subshrub species such as perennial saltbush, iodine bush, alkali blite, and goldenbush, but also could include forbs and grasses such as alkali heath, alkali weed, pickleweed, alkali sacaton, and saltgrass. Wildlife species associated with alkali scrub are specifically adapted to its open, sparsely vegetated, dry conditions and include several special-status species.

Annual and Perennial Grasslands These habitat types occur throughout the San Joaquin Valley, mostly on level plains to gently rolling foothills at elevations immediately higher than surrounding areas. Annual grasslands are comprised primarily of introduced annual grasses and forbs such as wild oats, ripgut brome, soft chess, and barley. Habitat value is variable, depending largely on current management and grazing history. Perennial grasslands are typically associated with moist, lightly grazed relict areas within annual grasslands-dominated landscapes and are quite rare. Characteristic native perennial grasslands species include purple needlegrass and alkali sacaton. Grassland habitats are important foraging areas for a large number of species, including hawks and swallows, mourning doves, loggerhead shrike, coyotes, and badgers. The habitat type supports large populations of small prey species, such as deer mice, pocket gophers, voles, and ground squirrels. Birds such as killdeer, ring-necked pheasant, western meadowlark, western kingbird, and horned lark nest in grassland habitats. Common reptiles and amphibians of grassland habitats include western fence lizard, common kingsnake, western rattlesnake, common garter snake, and western toad. An extensive list of terrestrial special-status species are also associated with the grassland habitat types. *Vernal pool* communities, shallow depressions filled with water from winter storms that subsequently dry up during spring or early summer, are a rare and protected form of wetland found only within grassland habitats. Grassland habitats in the study area or within a 2-mile radius are generally located along the western margins of the San Joaquin Valley.

Valley Foothill Riparian This habitat type is found in valleys and bottomlands bordered by sloping alluvial fans, slightly dissected terraces, lower foothills, and coastal plains. It is generally associated with low velocity rivers and streams, floodplains, and gentle topography. In the study area, major valley foothill riparian habitats are associated with the San Joaquin River and major tributary streams. Dominant tree species include Fremont cottonwood, California sycamore, valley oak, white alder, boxelder, and Oregon ash. Common shrubs include wild grape, wild rose, California blackberry, blue elderberry, poison oak, buttonbrush, and willows. The herbaceous layer may include sedges, rushes, grasses, miner's lettuce, Douglas sage, poison hemlock, and hoary nettle. All valley foothill riparian habitats have exceptionally high wildlife value. A large number of riparian obligate migratory birds forage and nest in the valley foothill riparian habitat type, as well as a long list of common and frequently observed birds, reptiles, amphibians, and mammals and numerous special-status species.

Deciduous and Evergreen Forest Deciduous forests are composed of trees that lose their leaves in the winter. These include species such as the various California oaks and California buckeye. The interior live oak, which is not deciduous, is also found in deciduous forests. Valley oak woodlands are found in the Sacramento and San Joaquin Valleys and usually occur below elevations of 2,000 feet. The deciduous forest plant species often provide a substantial amount of food to associated animals. The forest itself also provides a large amount of habitat. Wildlife

associated with deciduous forests includes a wide variety of birds, small rodents, deer, racoons, various insects, foxes, bobcats, black bears, or even wolves.

Some of the component species of the mixed evergreen forest include tanbark oak, madrone, douglas fir, California bay, bigleaf maple, canyon live oak, black oak, coast live oak, and California hazelnut. This forest is also filled with leafy trees and few conifers.

The CV Contractor's service areas cover an extensive area in the San Joaquin Valley including parts of Fresno, Tulare, and Kern Counties, and a very small portion in southeastern Kings County (Atwell Island Water District). The following sections discuss the vegetation and wildlife resources that may be affected by the project.

City of Tracy

Vegetation and Natural Habitat Setting Historically, the service area was dominated by perennial native grasslands, broad riparian zones and freshwater marsh wetlands. During the 1800s, settlers drained wetland and riparian areas and converted the land for agriculture. Grasslands were similarly eliminated from the region as a result of concentrated grazing and agricultural conversion. Wetlands have been generally mapped as part of the National Wetland Inventory of the FWS. The Tracy service area currently contains a range of vegetation and habitat types including urban, agricultural, riparian woodlands, seasonal wetlands, farmed wetlands and non-native grasslands.

These vegetation areas and habitats, which are described below, host a wide range of wildlife and plant species that reflect the diversity in San Joaquin County and the Central Valley.

Farmed Wetlands Wetland areas that are currently in agricultural uses are defined as farmed wetlands. This type of area occurs in the northern portion of the Tracy Service Area.

Lakes, Ponds and Open Water Includes both natural and human-made water bodies such as that associated with working landscapes, municipal water facilities and canals, creeks and rivers.

Seasonal Wetlands There are numerous seasonal wetlands throughout the Tracy Service Area which typically fill with water during the wet winter months and then drain enough to become ideal plant habitats throughout the spring and summer.

Tidal Salt Ponds and Brackish Marsh Brackish marshes are areas affected by irregular tidal flooding with generally poor drainage and standing water. In the northern portion of the Tracy Planning Area there are minimal occurrences along some of the larger river channels.

Riparian Woodlands The Great Valley Riparian Woodland communities lay in the northern portion of the Service Area, along the Old River and Tom Paine Slough riparian zones, and in the southern portion of the Planning Area long the Corral Hollow system, which flows northeast.

Agricultural Much of the Service Area outside the Tracy City limits is used for agricultural production. This area includes land that is currently in agricultural use and lands that have been used for agricultural uses in the past but remain un-urbanized.

Urban Much of the land in the city limits and parts of the sphere of influence is built up and therefore considered Urban.

Non-Native Grasslands The majority of non-native grasslands that occur in the Tracy area are in its southern portion, and are often associated with grazing activities (City of Tracy 2005).

SCVWD

There are four broad groupings of habitat/vegetation types in Santa Clara County: (1) Baylands habitats (including estuaries, mudflats, salt marshes, salt ponds, and levees); (2) Freshwater habitats (including flowing streams, riparian zones, freshwater marshes, and lentic zones); (3) Grassland/Savannah habitats; (4) Chaparral/Forest habitat (including chaparral, mixed evergreen forest, redwood forest, foothill woodland, and closed-cone pine forest). The CDFG's Natural Diversity Data Base (CNDDB) lists 39 "special plant species, subspecies or varieties" known to occur in Santa Clara County.

Most urban development and water use occurs on the 350-square-mile valley floor. Permanent and seasonal populations of wildlife species are found in the diverse habitat types and relatively undeveloped upper watersheds and Baylands. In addition, local streams provide habitat to native freshwater fish, and some species of anadromous marine fish. The CDFG reports that 26 "special animal species and/or subspecies" (including invertebrates and fish) are known to occur in Santa Clara County.

Intense urban development that has occurred in the past in Santa Clara County has largely eliminated natural biological resources on the valley floor. Those wildlife species adapted to urban trees and landscaping are present in residential neighborhoods. Remnant stands of native vegetation in parks, along creeks, and at the edge of San Francisco Bay also provide refugia for numerous wildlife species.

Streams crossing the valley floor are often vegetated with willow, Fremontia, cottonwood, box elder, and western sycamore trees. These support migratory and resident birds, deer, small mammals, and a few species of amphibians and reptiles. Streams support warm and cold water fisheries, and some runs of anadromous fish. These types of riparian habitats have been described as Coast Cottonwood – Sycamore Riparian Forest, and are designated by the California Natural Diversity Data Base as rare and sensitive.

Several types of marshes occur in the county, primarily along the edges of San Francisco Bay and streams, and less common at scattered locations where a year round water supply is at or near the ground surface. Salt marsh occurs in those areas daily flushed by the tides and is generally vegetated with cordgrass and pickleweed. Brackish marsh, where the tides and freshwater inflow mix, is vegetated with bulrushes. Freshwater marsh is vegetated primarily with cattails. Marshes provide special habitat for fish, birds, and amphibians, and represent most of the wetland vegetation in the County. Some of these areas may only be wet on a seasonal basis. SCVWD percolation ponds usually have a narrow strip of freshwater marsh vegetation along their edges.

Several special status species are found in the marshes and riparian areas of Santa Clara County: California clapper rail, salt marsh harvest mouse, salt marsh wandering shrew, salt marsh yellowthroat, Alameda song sparrow, southwestern pond turtle, and California red-legged frog. Federally listed Steelhead and Chinook salmon are anadromous fish that use the stream corridors for spawning and habitat for young fish.

The two mountain ranges to each side of the valley floor are less developed and generally support grassland, chaparral, and oak savannah vegetation. The wet conditions of the coastal Santa Cruz Mountains support redwood forests and other mixed hardwoods at the higher elevations. A greater diversity of wildlife species is associated with the mountain ranges and foothills.

Cross Valley Contractors' Service Area

Major land use within the CV Contractors' service area includes natural or native habitats (44,411 acres), agriculture (249,151 acres), and urban areas (6,112 acres) (Table 8). Major natural areas include grasslands (native and nonnative), oak woodlands, riparian areas, and freshwater aquatic communities (seasonal wetlands, vernal pools, and ponds) (Holland 1986; Mayer and Laudenslayer 1988; Holland and Keil 1989; 1989; Hickman 1993; Harvey 1995). Agricultural areas include row crops, vineyards, orchards, grains, cotton, pastures, and dairies.

Table 8
Summary of CVP Cross Valley Contractor Land Use or Habitat Types

Contractor	Habitat Type (acres)		
	Agriculture^a	Natural or Native^b	Urban
County of Tulare			
Alpaugh ID ^c	7,243	3,346	96
Atwell Island WD ^{c,d}	4,450	2,687	0
City of Lindsay	0	--	--
City of Visalia	0	--	--
Hills Valley ID		(see below)	
Fransinetto Farms	155	--	--
Saucelito ID ^g	19,456	184	97
Stone Corral ID ^g	6,395	480	10
Strathmore PUD	0	--	--
Styrotek, Inc.	0	--	--
Hills Valley ID ^e	2,323	910	40
Kern-Tulare WD ^{c,f}	16,321	9,078	106
Lower Tule River ID ^g	93,885	77,988	1,240
Pixley ID ^c	60,629	11,583	1,302
Rag Gulch WD ^{c,f}	36,431	5,879	3,214
Tri-Valley WD ^e	1,863	2,476	114

Table 8**Summary of CVP Cross Valley Contractor Land Use or Habitat Types**

Contractor	Habitat Type (acres)		
	Agriculture^a	Natural or Native^b	Urban
County of Fresno	0	--	--
Total	249,151	44,411	6,112

Source: David Scroggs, DWR pers. comm. 1999

Note:

a Includes irrigated and non-irrigated lands

d 1996 Kings County data

g 1999 Tulare County data

b Includes wetland and riparian habitats

e 1994 Fresno County data

c 1993 Tulare County data

f 1990 Kern County data

-- data not available

Valley Grassland Community (includes Non-native Grasslands, Valley Needlegrass Grassland, Valley Sacaton Grassland, Valley Wildrye Grassland, and Wildflower Fields). Grassland communities within the natural areas of the CV Contractors' service areas can be divided into non-native grasslands and relic native communities. Non-native Grassland is the most widespread and intermingles with remnant native communities of all types. It is dominated by non-native, annual grass species such as wild oats, ripgut brome, soft chess, red foxtail chess, foxtail, wild rye, and annual fescues. The most common non-native forbs include mustard and filaree.

Relic native communities include Valley Needlegrass Grassland, Valley Sacaton Grassland, Valley Wildrye Grassland, and Wildflower fields. Valley Needlegrass Grassland typically occurs on fine-textured soils in openings in oak savanna. Once dominated by perennial bunch grasses such as purple needlegrass and slender needle grass, most remnants are dominated by introduced annual species. Valley Sacaton Grasslands occur on poorly drained, alkaline soils. Dominant species include perennial, bunch grass alkali sacaton and salt grass. Valley Wildrye Grassland occurs on moist sites at low elevations, often in openings in riparian forest habitats. Soils are typically subalkaline and experience seasonal flooding. The sod-forming perennial grass leymus dominates. Remnant wildflower fields are dominated by non-native annual grass species and are characterized by brilliant displays of spring-blooming forbs such as California poppy, lupine, trefoil, rusty popcornflower, and layia. Other common native forbs include fiddleneck, gilia, goldfields, linanthus, owl's clover, and phacelia. These are all spring flowering plants and most are annuals. Common summer and fall flowering plants include tarweeds, turkey mullein, vinegar weed, and buckwheat. An annual native grass species would include wild barley. Some of the grassland areas also have vernal pools present, which have their own unique characteristics (see vernal pool description below).

Resident grassland birds of Study Area include the western meadowlark, mourning dove, western kingbird, burrowing owls, and horned larks. In the winter these species are joined by American pipits and savannah sparrows among others. Raptors, which nest and roost in adjacent riparian habitats, hunt here. Raptors that would be expected in the grassland area include the

white-tailed kite, red-tailed hawk, golden eagle, American kestrel, barn owl, great horned owl, short-eared owl, turkey vulture, Northern harrier, and prairie falcon.

Large populations of small mammals provide a primary source of prey for many predators. The most obvious small mammal, the California ground squirrel, occurs in numerous scattered colonies. Grasslands also provide an abundant food supply for small mammals such as the deer mouse, Botta's pocket gopher, the black-tailed hare, western harvest mouse, and California vole.

In turn, these small mammals serve as prey for coyotes, red foxes, badgers, the endangered San Joaquin kit fox, and avian predators.

Annual grasslands provide habitat for a variety of amphibian and reptile species. The Gilbert's skink and western fence lizard occur here, especially along fence lines and grassland edges where they are close to cover. Gopher snakes commonly hunt lizards and small mammals in grasslands. Other reptilian species expected to occur include the common garter snake, California horned lizard, western rattlesnake and the endangered blunt-nosed leopard lizard.

Oak Woodland Communities Oak woodlands occur at elevations ranging from 10 to 1,500 meters (30 to 5,000 feet) in the foothills of the Sierra mountain range and San Joaquin Valley. These woodlands are dominated by trees that are 5 to 21 meters (15 to 70 feet) in height and vary from open savannas to dense, closed-canopy communities. The most common type consists of scattered trees and scrubs with an understory of grasses and forbs. Oak woodland areas are often more dense on the north-facing slopes compared to the south-facing slopes. At higher elevations, oak woodlands are often more dense and have a greater species diversity compared to lower levels. The understory of an oak woodland includes grasses and forbs previously described above and shrubs such as California buckeye and redbud. There are two groups of Oak Woodland Communities in the San Joaquin Valley region; 1) Valley Oak Woodland Communities and 2) Foothill Woodland Communities. Valley Oak Woodland is the predominant type that exists within the CVC contract service area.

Valley Oak Communities (includes Valley Oak Woodland) Valley Oak Woodlands mix into foothill woodlands, but are generally restricted to deep alluvial valley soils at low elevations which parallel riparian communities. Other oak species tend to occur on shallower soils on slopes. Valley oak stand densities range from open savanna to dense forest savanna and valley oak is often the only canopy species. The understory is typically composed of non-native grasses and forbs as described above. Most of the valley oaks in the San Joaquin Valley have been removed for cultivation and urbanization. A few scattered stands remain in the valley in areas around dwellings and in parks. Unfortunately very little regeneration has occurred, primarily due to livestock grazing.

Valley oak woodlands provide important food and cover for many species of wildlife. Oak trees are used for foraging, shelter, nesting, and loafing by a variety of avian and mammalian species. Avian species that would be expected in an valley oak community include the red-shouldered hawk, red-tailed hawk, California quail, plain titmouse, western scrub-jay, spotted (or rufous-

sided) towhee, Bewick's wren, bushtit, and acorn woodpecker. Mammalian species include the mule deer, western gray squirrel, bobcat, coyote, western harvest mouse, Botta's pocket gopher, California vole, and deer mouse. Reptilian species include the western fence lizard, common garter snake, and western rattlesnake.

Riparian Communities Riparian Communities occur along the rivers, numerous creeks, and sloughs within the CVC service contract area. Riparian communities usually consist of one or more deciduous tree species plus an assortment of shrubs and herbs that border streams, rivers, lakes, and springs. Trees vary from tall, dense forests to a scattering of a few individual trees. The extent of riparian vegetation also varies depending on the size and nature of the banks and floodplains, by the amount of water carried by the waterway, and the depth of the aquifers. The existence of a riparian community is dependent upon a permanent water supply. The microenvironment varies depending on seasonal fluctuation of light availability to the understory. During the winter, deciduous trees are dormant and leafless, allowing direct sunlight to the understory vegetation. Some of the herbaceous plants and shrubs grow and flower with the addition of sunlight. During the summer, broadleaf deciduous trees can provide dense shade, resulting in decreased sunlight, which provides for cooler temperatures and higher humidity within the riparian corridor.

Valley and Foothill Riparian Communities (includes Great Valley Willow Scrub, Great Valley Cottonwood Riparian Forest, White Alder Riparian Forest, Great Valley Mixed Riparian Forest, and Great Valley Oak Riparian Forest) Valley and Foothill Riparian Communities occur from the Central Valley floor to the lower elevation margins of the montane coniferous forest of cismontane California. These riparian zones can vary from broad valley floodplain forests to narrow, steep canyon streams. The dominant trees or shrubs include: white alder, Oregon ash, western sycamore, Fremont's cottonwood, valley oak, red willow, Gooding's (or black) willow, and arroyo willow. Common evergreens include interior live oak, California bay-laurel, and a noxious exotic weed, salt cedar or Tamarisk. Common shrubs include: seep willow, button-willow, dogwoods, California wild rose, blackberries, elderberries, California grape, and poison oak. Herbaceous species include: spikenard, mugwort, sedges, flat-sedges, spike-rushes, willow-herbs, horsetails, rushes, monkeyflowers, watercress, bulrushes, stinging nettle, and cattail. Below is a brief description of the specific riparian communities that potentially could occur within the CVC contract service area.

Great Valley Willow Scrub occupies frequently inundated floodplains and banks of major rivers and smaller streams. It is characterized by dense, shrubby thickets dominated by willow species including narrow-leaved willow, arroyo willow, red willow, and dusky willow. Associated species include California wild rose and Fremont's cottonwood.

Great Valley Cottonwood Riparian Forest occurs in alluvial soils near streams that provide subsurface irrigation year-round. These sites are subject to spring inundation. Characteristic species include Fremont's cottonwood, assorted willows, box elder, and Oregon ash.

White Alder Riparian Forest occurs along rapidly flowing, well aerated, perennial, canyon streams that experience substantial scouring and high flows during spring runoff. Canyons are typically deeply incised, resulting in a narrow riparian corridor.

Great Valley Mixed Riparian Forest occur further back from river and stream banks, where flooding and scouring events are less frequent and severe. Dominant species are typically winter deciduous and include California walnut, white alder, western sycamore, Fremont's cottonwood, box elder, and assorted willow species.

Great Valley Oak Riparian also occurs further back from river and stream banks, where less physical disturbance occurs during flooding. Dominant species include valley oak, California walnut, white alder, western sycamore, Oregon ash, blackberries, and poison oak.

Valley and Foothill Riparian Communities provide food, cover, water, migration and movement corridors, escape, nesting, and thermal cover for a wide diversity of wildlife species. Expected wildlife species would be similar to species previously described in the Oak Woodland and Valley Grassland Communities. Additional species include water dependent species such as the wood duck, mallard, great blue heron, great egret, snowy egret, and beaver.

Freshwater Aquatic Communities Freshwater aquatic communities occur in still and flowing waters and can range in size from small pools to small reservoirs or stock ponds throughout the CV Contractors' service area. Areas that are seasonally wet also support freshwater aquatic environments. Aquatic communities vary and are dependent on several interacting environmental factors including: species composition, water depths, water level fluctuations, water flow rates, water and air temperatures, other climatic variables, pH, dissolved salts, organic content of the water, nature and depth of bottom sediments, and history of the body of water. Deep, open water areas support submergent or floating aquatic plant communities. Shallow water areas generally support emergent vegetation. Seasonal wetlands are temporary and usually become dry during the summer. Water levels in artificial reservoirs (i.e. livestock or farm ponds, irrigation storage ponds) often fluctuate, preventing well-developed aquatic communities from becoming established. There are two main types of freshwater aquatic communities present: 1) limnetic communities which occur in open water and 2) littoral communities which occur in shallow water and along shores of open bodies of water. Littoral communities include freshwater marshes, bogs, montane meadows, and vernal pools.

Limnetic Plant Communities (includes lakes, reservoirs, irrigation, and stock ponds)

Limnetic plant communities have both algal and higher plant components. The algal component is primarily plankton with a variety of algal species. Vascular plants include: hornwort, elodea, quillwort, water-milfoil, water-nymphs, and pondweeds . Floating plants include: water fern, hornwort, duckweed, water buttercup, and bladderwort.

Open ponds provide feeding and loafing areas for a variety of birds including the eared grebe), eastern grebe, Clark's grebe, American white pelican, double-crested cormorant, American coot, and waterfowl such as the canvasback, redhead, lesser scaup, mallard, northern pintail, northern

shoveler, and Canada goose. Depending on their location, reservoirs provide a water source for a variety of terrestrial wildlife including coyotes, badgers, striped skunks, weasels, California quail, and passerine birds.

Freshwater Marsh Communities (includes Freshwater Seeps, Valley Freshwater Marsh, and Vernal Marsh) Freshwater marsh communities develop in locations with slow-moving or stagnant water. These communities occur along margins of ponds and lakes and in the floodplains of slow moving streams and rivers. Marshes can also develop where seepage from springs or shallow water tables allow rooted aquatic plants to become established. Common marsh plants include sedges, spikerushes, bulrushes, bur reeds, cattail, Tule, water hemlock, willow-herbs, common monkeyflower, watercress, smartweeds, dock, pondweed, duckweed, and widgeongrass.

Freshwater marshes are among the most productive wildlife habitats in California, providing a diversity of habitats for a wide variety of wildlife species. This habitat provides foraging, loafing, and cover areas for species such as the mallard, northern pintail, gadwall, green-winged teal, cinnamon teal, Canada goose, white-fronted goose, American coot, American bittern, green heron, great egret, snowy egret, great blue heron, northern harrier, red-tailed hawk, dowitcher, least sandpiper, western sandpiper, black-bellied plover, killdeer, dunlin, American avocet, and black-necked stilt. Mammals include the California vole, muskrat, raccoon, coyote, striped skunk, and long-tailed weasel. Amphibians and reptiles that depend on or utilize freshwater marshes include the western toad, western spadefoot, pacific treefrog, western pond turtle, and gopher snake.

Vernal Pool Communities (includes Northern Hardpan Vernal Pools, Northern Basalt Flow Vernal Pools, and Northern Volcanic Mudflow Vernal Pools) Vernal pools are seasonal, shallow, ephemeral bodies of water that occupy depressions in grassland and woodland areas. The pools are underlain by an impervious layer of hardpan, claypan, or bedrock covered with a layer of clay or silt, which results in the collection and ponding of water during winter and spring rains. These pools are generally a few centimeters deep and seldom are more than a meter in depth. The pools gradually dry, resulting in a series of concentric rings of herbaceous vegetation forming around the pool margins.

Species composition in the pools varies in accordance with chemical and physical properties such as salinity, alkalinity (pH), depth, and duration of the pool. Most species that occur within vernal pools are endemic to California and require seasonal inundation followed by desiccation to complete their life cycles. Relative to other community types, vernal pools still support a high percentage of native vegetative cover. Vernal pools are characterized by herbaceous plants that begin as aquatic plants and make a transition to a dry land environment as the pools dry in late spring and summer. Most vernal pool vegetation is comprised of annual herbs with some deeply rooted rhizome type perennials. Vernal pool plant species include: foxtail, water starwort, hairgrass, downingia, rush, flowering quillwort, meadowfoam, tricolor monkeyflower, orcuttia,

allocarya, popcornflower, woollyheads, quillwort, water-clover fern, white brodiaea, slender spikerush, and coyote thistle. Vernal pools lack trees or shrubs. The CVC contract service area contains several distinct types of vernal pools including Northern Hardpan, Northern Basalt Flow, and Northern Volcanic Mudflow Vernal Pools.

Animal species that are vernal pool dependent include special-status species such as the fairy shrimp, longhorn fairy shrimp, vernal pool tadpole shrimp, California tiger salamander, and western spadefoot. Common invertebrate species would include the California linderiella. Migrating birds such as the mallard, cinnamon teal, black-necked stilt, and greater yellowlegs feed and loaf in vernal pools during spring migration. Other avian and mammalian species that would utilize a vernal pool and its surrounding area include species that are listed in the Grassland Community section.

Anthropogenic Communities and Agricultural Areas Much of the San Joaquin Valley's vegetation has been altered by human activities including urbanization, roads and highways, livestock grazing, and agriculture. Communities dominated by introduced plants and established or maintained by human disturbance are referred to as anthropogenic communities. Anthropogenic communities include: 1) agrestal ("of or pertaining to plants growing wild in fields and uncultivated areas") communities, 2) pastoral communities, 3) ruderal communities, 4) plantations, and 5) the urban mix. Agrestal communities are in areas that have been disturbed by cultivation and thrive in the same environment as agricultural crops. Pastoral communities are dominated by species that are adapted to livestock grazing. Valley grassland communities have become a type of pastoral community. Ruderal communities are highly disturbed areas such as roadsides and similar disturbed sites in towns and cities. Plantations are areas that have been planted with trees such as windbreaks and orchards. Urban mix habitats are areas where nonnative plant species have escaped or been planted in and around urban and residential developments. It is not uncommon to find a mix of native and non-native plants in urban open areas. The local urban mix is difficult to classify due to the variety and vast number of cultivated species introduced into the urban setting.

Anthropogenic Communities provide some wildlife habitat values to native animal species, as well as to non-native species such as the house sparrow, European starling, rock dove, black rat, and house mouse. Wintering waterfowl and coots could be expected to forage on park and golf course lawns. Trees and shrubs provide nesting, roosting, and foraging areas for native species such as the northern mockingbird, mourning dove, Brewer's blackbird, American crow, and raven, as well as for hummingbirds, and other song birds. Mammals that would be expected in an urban setting include the Virginia opossum, striped skunk, Botta's pocket gopher, ground and tree squirrels, and bats.

Agricultural Agricultural areas provide cover, foraging, and loafing areas for a variety of wildlife. Pre-irrigated grain fields provide food and loafing areas for migrating and wintering

waterfowl, shorebirds, gulls, and terns. Standing grain and alfalfa fields provide feeding, nesting, and escape cover for ducks such as the mallard, gadwall, and cinnamon teal, and for blackbirds. Grain and alfalfa fields support rodent populations which in turn provide hunting areas for avian and mammalian predators. Irrigated alfalfa fields provide foraging areas for gulls and egrets. Open, fallow fields provide areas for wintering species such as the mountain plover. Fallow fields with vegetation can provide cover and food for small mammals, which provide hunting areas for avian and terrestrial predators. Orchards provide nesting and roosting areas for species such as Mourning Doves and other passerines, as well as, habitat for mammalian species such as the California ground squirrel (Zeiner 1988; 1988a; 1988b).

3.3.2 ENVIRONMENTAL CONSEQUENCES

No Action Alternative

The No Action Alternative is the renewal of existing IRCs as required by non-discretionary CVPIA provisions addressed in the CVPIA PEIS. The No Action Alternative would only continue, for an interim period, water deliveries that accommodate current land uses. Environmental commitments in existence as a result of the existing and future BO's, including the CVPIA BO (Reclamation and Service 2000) would be met under the No Action Alternative, including continuation of ongoing species conservation programs.

Execution of IRC's would not involve construction of new facilities or installation of structures. Ongoing trends in irrigation methods are toward higher efficiency systems and related changes in cropping, generally away from row crops and toward permanent crops. Reclamation anticipates that those trends would continue under the No Action Alternative, because those trends are spurred in part by water shortages from the implementation of laws and regulations that reduced the quantity of CVP water available for delivery to the IRC contractors. Therefore, species inhabiting orchards and other permanent crops would benefit and those preferring row crops would be adversely affected under the No Action Alternative, but over the short interim period, these changes are not likely to be substantial.

For irrigation, these trends are clear enough to support the conclusion that other economic considerations would outstrip the effects of tiered pricing for irrigation water under the No Action Alternative, so no effects on biological resources is expected from its implementation.

With regard to M&I development, the short term of the contracts does not provide the long-term water supply required for conversions from agriculture to M&I uses. Lack of new development would not, itself, affect species and habitats.

For these reasons, the No Action Alternative would not result in substantial changes in natural and semi-natural communities and other land uses that have the potential to occur within study area and other portions of the IRC contractors' service areas. The area of use and types of use

are expected to fall within the historic ranges. As a result, the No-Action Alternative would not result in adverse effects on fish, vegetation, or wildlife resources located in the study area and other portions of the IRC contractors' service areas.

Proposed Action

CVP-wide impacts to biological resources were evaluated in the PEIS, and a FWS BO to address potential CVP-wide impacts was completed on November 21, 2000. The programmatic BO and Essential Fish Habitat Conservation Recommendations prepared by NOAA Fisheries for the CVPIA was completed on November 14, 2000.

Given the hardening of demand that has already occurred in response to chronic shortages in CVP contract supplies, and ongoing trends toward increased irrigation efficiency and economic factors apart from the contract that influence crop selection, and the lack of tiered pricing, the Proposed Action is unlikely to have any effect on water application for irrigation within the study area. In all other aspects, the effects of the proposed contracts are substantially similar to those under the No-Action Alternative, so the Proposed Action would not result in changes in natural and semi-natural communities and other land uses that have the potential to occur within the study area.

Reclamation has determined that there would be no effects to species and critical habitats under the jurisdiction of NMFS within the service areas. Effects to species and critical habitats under the jurisdiction of FWS within the service areas would be addressed in the BO issued by that agency to Reclamation before the interim contracts are signed. Such effects include loss of habitat and reduced habitat values, resulting from ongoing trends within the Valley, and are considered to be indirect effects under the federal ESA.

Cumulative Effects

Interim renewal contract, when added to other past, present, and reasonably foreseeable future actions, represent a continuation of existing conditions which are unlikely to result in cumulative impacts on the biological resources of the study area. Interim renewal contracts obligate the delivery of the same contractual amount of water to the same lands without the need for additional facility modifications or construction. Thus, the interim renewal contracts, together with reasonably foreseeable future actions, would not incrementally contribute to any physical impacts to study area biological resources.

Also, interim renewal contracts would occur within the context of implementation of the CVPIA by the United States Department of the Interior (DOI), including Reclamation and FWS. Reclamation and the FWS explained the CVPIA in a report entitled "CVPIA, 10 Years of Progress", as follows:

The CVPIA has redefined the purposes of the CVP to include the protection, restoration, and enhancement of fish, wildlife, and associated habitats; and to contribute to the State of California's interim and long-term efforts to protect the San Francisco Bay/Sacramento-San Joaquin River Delta Estuary (Delta). Overall, the CVPIA seeks to "achieve a reasonable balance among competing demands for use of [CVP] water, including the requirements of fish and wildlife, and agricultural, municipal and industrial, and power contractors."

Finally, as explained above, interim renewal contracts would be subject to regulatory constraints imposed pursuant to Section 7 of the ESA, regardless of whether those constraints exist today, are imposed through a re-consultation, or result from litigation concerning applicable BOs.

3.4 Cultural Resources

3.4.1 Affected Environment

Cultural resources is a term used to describe both 'archaeological sites' depicting evidence of past human use of the landscape and the 'built environment' which is represented in structures such as dams, roadways, and buildings. The National Historic Preservation Act (NHPA) of 1966 is the primary Federal legislation which outlines the Federal Government's responsibility to cultural resources. Other applicable cultural resources laws and regulations that could apply include, but are not limited to, the Native American Graves Protection and Repatriation Act (NAGPA), and the Archaeological Resources Protection Act (ARPA). Section 106 of the NHPA requires the Federal Government to take into consideration the effects of an undertaking on cultural resources on or eligible for inclusion in the National Register of Historic Places (National Register). Those resources that are on or eligible for inclusion in the National Register are referred to as historic properties.

The Section 106 process is outlined in the Federal regulations at 36 CFR Part 800. These regulations describe the process that the Federal agency (Reclamation) takes to identify cultural resources and the level of effect that the proposed undertaking will have on historic properties. In summary, Reclamation must first determine if the action is the type of action that has the potential to affect historic properties. If the action is the type of action to affect historic properties, Reclamation must identify the area of potential effects (APE), determine if historic properties are present within that APE, determine the effect that the undertaking will have on historic properties, and consult with the State Historic Preservation Office (SHPO), to seek concurrence on Reclamation's findings. In addition, Reclamation is required through the Section 106 process to consult with Indian Tribes concerning the identification of sites of religious or cultural significance, and consult with individuals or groups who are entitled to be consulting parties or have requested to be consulting parties.

Cultural resources in this area are generally prehistoric in nature and include remnants of native human populations that existed before European settlement. Prior to the 18th Century, many Native American tribes inhabited the Central Valley. It is possible that many cultural resources lie undiscovered across the valley. The San Joaquin Valley supported extensive populations of Native Americans, principally the Northern Valley Yokuts, in the prehistoric period. Cultural studies in the San Joaquin Valley have been limited. The conversion of land and intensive farming practices over the last century has probably destroyed many Native American cultural sites (Bureau of Reclamation 2006).

The CVP is being evaluated for the National Register of Historic Places (NRHP). Facilities related to this study area include the DMC, Friant Dam and the FKC.

Friant Dam is located on the San Joaquin River, 25 miles northeast of Fresno, California. Completed in 1942, the dam is a concrete gravity structure, 319 feet high, with a crest length of 3,488 feet. The FKC carries water over 151.8 miles in a southerly direction from Millerton Lake to the Kern River, four miles west of Bakersfield. The water is used for supplemental and new irrigation supplies in Fresno, Tulare, and Kern Counties. Construction of the canal began in 1945 and was completed in 1951.

The Delta-Mendota Canal, completed in 1951, carries water southeasterly from the Tracy Pumping Plant along the west side of the San Joaquin Valley for irrigation supply, for use in the San Luis Unit, and to replace San Joaquin River water stored at Friant Dam and used in the Friant-Kern and Madera systems. The canal is about 117 miles long and terminates at the Mendota Pool, about 30 miles west of Fresno (Reclamation, 2006).

WWD

In the WWD area, during the prehistoric period, the San Joaquin Valley supported extensive populations of Native Americans, principally Northern Valley Yokuts. By the mid-19th century, after Spanish and Mexican incursions and the introduction of European-born epidemics, Native American populations declined and became culturally extinct in the San Joaquin Valley by mid-19th century. The extent of cultural studies in the San Joaquin Valley is limited. The reclamation of land and intensive farming practices over the last century has removed destroyed many Native American occupation sites (WWD Water Supply Replacement Project EIR, 1989).

SCVWD

The Ohlone, or Costanoan, Indians inhabited the Santa Clara County area in prehistoric times. The Ohlones were gatherers and hunters who utilize native flora and fauna such as acorns, tule, ducks, and deer for food, shelter, and trade items. Beginning in the late 1700's, Spanish explorers and missionaries arrived in Santa Clara County. Settlers began to develop land in Santa Clara County first as ranchland, and by the mid-1800's as agricultural land, particularly for

orchards. Many settlements during prehistoric and historic times were located adjacent to water ways. Native American artifacts and occasional burials are most frequently found in association with existing or prior locations of creeks. Many of the historic neighborhoods and buildings are associated with the original settlements along the Guadalupe River, including the Pueblo de San Jose, which was the first civil settlement in Alta California.

City of Tracy

City of Tracy Cultural resources in Tracy consist of historical buildings and landmarks, and archaeological and paleontological resources.

Archaeological and Paleontological Resources. In general, little archaeological or paleontological work has been completed in San Joaquin County. Cultural resources in the Tracy Planning Area outside of City limits are generally prehistoric in nature and include remnants of native human populations that existed before European settlement. Large portions of the Tracy Area have not been surveyed for prehistoric artifacts (City of Tracy, 2005).

Historic Landmarks. In 1976, the Tracy City Council contracted with the State Office of Historic Preservation to conduct an historic resources survey of Tracy. The survey was completed and published on October 21, 1977, and considered buildings constructed between 1878 and 1941. A more recent survey of historic resources in Tracy has not been conducted. Fifty structures and sites were found to be both architecturally and historically significant to Tracy. Two more structures were added in 2001. Tracy has six historic sites that are listed on the NRHP and also recognized by the California State Office of Historic Preservation's listing of California Historical Landmarks, however, there are no State Points of Historical Interest in the Tracy Area (City of Tracy, 2005).

CV Contractors' Service Area

Most of the territory encompassed by the CV Contractors' service area was occupied at the time of contact by the Yokuts group, the various branches of which occupied most of San Joaquin Valley, its eastern and western foothills, and the eastern part of Delta. The Yokuts language is a member of the Penutian stock, which includes the Miwok and Costanoan (or Ohlone) groups. The Penutian peoples are thought to have entered central California from the northwestern Great Basin beginning around 1500 BC (Moratto 1984) and to have gradually displaced the previous inhabitants, speakers of Hokan and Uto-Aztecan stocks. This hypothetical population movement is associated chronologically with the development of the Windmiller pattern in Sacramento Valley, a cultural pattern characterized by diversified food-gathering strategies, including highly developed hunting and fishing technology; the pattern also features extended burials oriented towards the west.

The first Europeans to enter the CV Contractors service area were Pedro Fages and his expedition, who explored the San Joaquin Valley in 1772. However, most subsequent Spanish settlement in California was concentrated along the coast and adjacent valleys. When Mexico became independent, the government began to give land grants to settlers, including a few in the southern valley in the early 1830s. These settlements often provided the nucleus for present-day cities.

Until the late 1850s, the San Joaquin Valley was sparsely settled by Europeans. Extensive areas of marsh were a hindrance to farming. By the mid-1860s, however, American settlers were beginning to reclaim and drain land for agriculture and ranching. By the 1870s, the San Joaquin Valley was the center of California's wheat production. The introduction of canning technology and transcontinental rail led to widespread diversification and development of specialty crops such as fruits and nuts. About the same time, exploitation of the petroleum resources of the valley began, and continues today. The need for a steady supply of water to irrigate the increasing acreage of farmed land led to the incorporation of water districts, and in 1933 to the introduction of the State Water Plan, which grew into the CVP.

There are 117 historic or archaeological resources are known within the CV Contractors service area. Of these, 57 (48.7 percent) are prehistoric archaeological sites; 10 (8.5 percent) are historic archaeological sites; two (1.7 percent) have both prehistoric and historic archaeological components; and 47 (40.2 percent) are part of the built environment.

A majority of the built environment resources (45 [93.8 percent]) are located in the City of Visalia water district and are urban in nature, mostly homes, bridges, and canals. Among the prehistoric resources 37 (62.7 percent) are located within CSA #34, a heavily surveyed area south of Millerton Lake. Few resources remain within the other districts of the CV Contractors service area. As noted above, it is likely that this paucity of sites reflects a lack of cultural resource inventories within the given areas, rather than the absence of historic or prehistoric resources.

Environmental Consequences

No Action

Under the No Action Alternative, would not change nor modify any features of the CVP nor result in ground disturbance and has no potential to affect historic properties pursuant to 36 CFO Part 800.3(a)(1).

Proposed Action

The proposed action is an administrative action that would allow for the flow of water through existing facilities to existing users. There is no ground disturbance or modification needed to the existing facilities as a result of this action. As a result there is no potential to affect historic

properties pursuant to 36 CFR Part 800.3(a)(1). There are no impacts to cultural resources as a result of implementing the proposed action.

Cumulative Effects

Since there is no potential to affect historic properties there are no impacts to cultural resources due to the alternatives, there would be no cumulative effects to cultural resources.

3.5 Recreational Resources

3.5.1 Affected Environment

Recreation sites that are within or near the service areas of the IRCs include San Luis Reservoir, Los Banos Reservoir, Little Panoche Reservoir, the O'Neill Forebay, SLC, the San Joaquin River, Millerton Lake and the Pixley and Mendota wildlife refuges.

San Luis Reservoir, the adjacent O'Neill Forebay, and Los Banos and Little Panoche Reservoirs provide reservoir-related recreational resources in or near the study area. San Luis Reservoir and the O'Neill Forebay are located west of Interstate 5 near State Route 152. Los Banos Reservoir is located southwest of the town of Los Banos and Little Panoche Reservoir is located south of Los Banos. Visitor attendance to the San Luis Reservoir State Recreation Area in fiscal year 2001 and 2002 was 514,096 [California Department of Parks and Recreation (CDPR) 2004]. This included 469,478 day-users and 44,618 campers.

Millerton Lake is a very popular lake for recreation use, primarily due to its proximity to Fresno. The outdoor recreation activities at Millerton Lake are water dependent or water enhanced. Such activities include boating, fishing, swimming, camping, hiking, hunting, and interpretive programs.

While recreational boating, camping, picnicking, and sightseeing are water-dependent opportunities within the central and lower San Joaquin Valley, waterfowl hunting and fishing are the primary water-dependent recreational activities affected by CVP water deliveries. Water from the CVP supports regional hunting and fishing activities by flooding the waterfowl refuges and hunting areas and conveying water through canals that support warm water fishing opportunities. The PEIS has based its assessment of impacts on recreational resources primarily upon projected changes in water levels at reservoirs and in rivers, changes in refuge conditions, and the associated changes in visitor usage. Data were compiled and are presented to characterize recreation conditions at lakes, reservoirs, and rivers in the PEIS. Additionally, the PEIS provides a description of the affected environment including facilities and activities at national wildlife refuges, wildlife management areas, and private hunting clubs in the central and lower San Joaquin Valley (Reclamation 1999; 1999a). The Pixley National Wildlife Refuge is the only wildlife refuge within any of the IRC's service areas.

In 1991, 39 private water fowl hunting clubs were reported for the Tulare Basin Region (i.e., Kern and Tulare counties), totaling approximate 15,700 acres. These hunting clubs flooded approximately 4,800 acres annually with hunting activity at about 8,200 hunter days. Flooded acres on water districts used for hunting were estimated to account for 22 percent (1,016 acres) of the total area flooded for water fowl hunting in the Tulare Basin Region (Reclamation 1994a).

Sportfishing in the Tulare Basin Region was projected to account for 11.8 million angler days in 1990. Fishing occurs primarily on rivers and lakes on the west slope of the Sierra Nevada and along the California Aqueduct. Most sportfishing that occurs in the CVP canals is for resident warmwater species, although no portion of the Friant-Kern, Madera, and CVCs is designated for public access fishing. Fishing in the canals is limited because of the small number of fish in the canals, access constraints, and the availability of fishing opportunities on nearby reservoirs and rivers (Reclamation 1986).

3.5.2 Environmental Consequences

No Action Alternative

As discussed above, no changes in CVP reservoir storage or modifications in the amount or timing of water deliveries, which could affect recreational resources, would occur under the No Action Alternative. Therefore, no impacts to recreational resources are anticipated.

Proposed Action

Impacts to recreational resources associated with the Proposed Action would be comparable to those described under No Action Alternative.

Cumulative Effects

There would be no cumulative effects to recreational resources.

3.6 Indian Trust Assets

3.6.1 Affected Environment

Indian Trust Assets (ITAs) are legal interests in property held in trust by the U.S. for federally-recognized Indian tribes or individual Indians. An Indian trust has three components: (1) the trustee, (2) the beneficiary, and (3) the trust asset. ITAs can include land, minerals, federally-reserved hunting and fishing rights, federally-reserved water rights, and in-stream flows associated with trust land. Beneficiaries of the Indian trust relationship are federally-recognized Indian tribes with trust land; the U.S. is the trustee. By definition, ITAs cannot be sold, leased, or otherwise encumbered without approval of the U.S. The characterization and application of the U.S. trust relationship have been defined by case law that interprets Congressional acts,

executive orders, and historic treaty provisions. Consistent with President William J. Clinton's 1994 memorandum, "Government-to-Government Relations with Native American Tribal Governments," Bureau of Reclamation (Reclamation) assesses the effect of its programs on tribal trust resources and federally-recognized tribal governments. Reclamation is tasked to actively engage federally-recognized tribal governments and consult with such tribes on government-to-government level (59 Federal Register 1994) when its actions affect ITAs. The DOI Departmental Manual Part 512.2 ascribes the responsibility for ensuring protection of ITAs to the heads of bureaus and offices (DOI 1995). Part 512, Chapter 2 of the Departmental Manual states that it is the policy of the Department of the Interior to recognize and fulfill its legal obligations to identify, protect, and conserve the trust resources of federally recognized Indian tribes and tribal members. All bureaus are responsible for, among other things, identifying any impact of their plans, projects, programs or activities on Indian trust assets; ensuring that potential impacts are explicitly addressed in planning, decision, and operational documents; and consulting with recognized tribes who may be affected by proposed activities. Consistent with this, Reclamation's Indian trust policy states that Reclamation will carry out its activities in a manner which protects Indian trust assets and avoids adverse impacts when possible, or provides appropriate mitigation or compensation when it is not. To carry out this policy, Reclamation incorporated procedures into its NEPA compliance procedures to require evaluation of the potential effects of its proposed actions on trust assets.

Within 15 miles east of the CV Contractors service area, there are approximately 10 public domain allotments (PDAs) located in Fresno and Tulare counties. The PDAs, owned by Native Americans, are small parcels of land that are frequently held in trust. Any land held in trust for Native Americans whether PDA or rancheria, is an ITA. One of the ITAs is located near but not within the CV Contractors water service districts - the Table Mountain Rancheria. Table Mountain Rancheria is near the County of Fresno service area. There are no ITAs in the City of Tracy, WWD or SCVWD.

3.6.2 Environmental Consequences

No Action Alternative

Under the No Action Alternative, continuous delivery of project water to existing contractors would not affect any ITA. Existing rights would not be affected, no physical changes to existing facilities are proposed and no new facilities are proposed.

Proposed Action

Impacts to ITA associated with the Proposed Action would be comparable to those described under the No Action Alternative.

Cumulative Effects

There would be no cumulative effects to ITAs.

3.7 Socioeconomic Resources

3.7.1 Affected Environment

Agriculture is a very important industry in the area surrounding the IRC contractors' service areas. If taken together, the farm and agricultural services sectors are important to all six counties. Agriculture takes on additional significance because it is generally considered a "primary" industry (along with mining and manufacturing). Santa Clara is the only county in the study area where agriculture is not the "primary industry." A reasonably large portion of activity in non-primary industries can be attributed to support for primary industry activity in an area. Changes in primary industry activity, therefore, usually precipitate additional changes in non-primary or support industries.

WWD

The socioeconomic setting is dependent upon population, employment, housing, and revenues earned by the primary private employers. The majority of human resources within WWD and surrounding lands, including Firebaugh, Coalinga, Lemoore, Avenal, Tranquility, Kettleman City, Huron, Mendota, and San Joaquin are located near WWD. These predominantly Hispanic communities, though relatively small and similar in size, have undergone varying rates of population growth over the years, which can be heavily influenced by the agricultural economy. WWD lies within an area of western Fresno and Kings Counties. Agriculture is vitally important in both counties, with agriculture being Fresno County's major industry. Fresno County consistently ranks among the top agricultural counties in the Country's agricultural production and employment. WWD's gross agricultural output totaled approximately \$773 million in 1994, which represented approximately 25.1 percent of Fresno County's \$3.084 billion in agricultural output in 1994. (WWD Annual Report 1994).

City of Tracy

City of Tracy is located 20 minutes east of the Bay Area and is centrally located to several large metropolitan areas (San Francisco, San Jose, and Sacramento). Tracy is a growing population of nearly 80,000 with a projected future population of 125,000 by 2025. The City of Tracy has one of the most diverse and skilled labor forces in the Central Valley, with 56 percent of the workforce attending or graduated from college. Tracy's daytime workers are primarily in professional and business services, retailing, and manufacturing. Tracy is home to a large number of science and technology workers, as well as many blue collar workers that commute to the Bay Area (City of Tracy, 2005).

SCVWD

Santa Clara County ranks fourth in the State in terms of population and jobs. Its industries provide more than 6 percent of the State's employment with a gross regional product of more than \$40 billion annually (SCVWD, January 1997). The County is a major employment center for the region, providing more than a quarter of all jobs in the Bay Area.

Population growth in Santa Clara County is expected to continue, but at slower rates than in the past. Most of the population growth is expected to occur in San Jose to a somewhat lesser extent, in the South County, while the north and west valley cities are expected to experience relatively little population growth (County of Santa Clara, undated).

The economy of Santa Clara County remains the strongest in the Bay Area and one of the strongest in the nation. The County, together with adjacent parts of San Mateo, Alameda, and Santa Cruz Counties, comprise the "Silicon Valley". The regions economy is expected to continue to grow and diversify in the future with high technology industries fueling most of the County's employment growth. Another expected trend is the change in location of employment away from previous major employment centers. As the northwestern cities have approached build out, new job growth has shifted southward into Santa Clara County and San Jose and eastward toward Milpitas and southern Alameda County. (County of Santa Clara, updated).

While Santa Clara County has 27 percent of the Bay Area's jobs, it contains only 23 percent of the regions households. This greater share of jobs than households is projected to continue through the year 2010. The Association of Bay Area Governments estimates that approximately 7 percent of County jobs will be filled by persons residing in other parts of the region, primarily Alameda, San Mateo, and Santa Cruz counties. (County of Santa Clara, updated).

The County's economy is a key element in the Northern California Bay Area, providing approximately 30 percent of all the jobs in the region. Nicknamed "Silicon Valley," with about one of every five of the County's jobs in high technology, the area continues to attract industries. Santa Clara County ranks fourth in the State in terms of jobs and population. In 2000, the population was estimated to be 1,737,000. Growth in the County is expected to continue, although at slower rates than in the past.

CV Contractors

The CV Contractors service area is a part of the economy of the San Joaquin Valley. In conjunction with implementing CVPIA, substantial changes in agricultural production, income, and employment are possible. In addition, economic impacts on agriculture will have a multiplier or induced impact effect on the rest of the regional and statewide economy. The CV Contractors service areas are located within portions of Fresno, Kern, Tulare, and a small portion in Southeastern Kings County (Atwell Island Water District) encompass portions of the most important agricultural production areas in the Central Valley and the state. All of these counties

have a per capita income lower than the state average and unemployment rates approaching double the state average based on the most recent data available (Table 9).

Table 9 County-Level Socioeconomic Data

County	2006 Population (estimate)	2006 Civilian Labor Force	2006 Employment	1999 Per Capita Income (most recent available)	2006 Unemployment Rate (%)
Fresno	891,756	414,800	381,400	\$15,495	8.0%
Kern	780,117	338,400	312,800	\$15,760	7.6%
Tulare	419,909	189,400	173,300	\$14,006	8.5%
Kings	146,153	55,600	50,900	\$15,848	8.5%
San Joaquin	673,170	287,800	266,400	\$17,365	7.4%
Santa Clara	1,731,281	834,400	797,100	\$38,795	4.5%
Totals	4,642,386	2,120,400	1,981,900		6.5%
California	36,457,549	17,901,900	17,029,300	\$22,711	4.9%

Sources: Census Bureau 2006, EDD 2006

Three of the counties encompassing the service area are amongst the state's top counties for agricultural production value, generating over 30 percent of the state's production value in 1998 and contain 1 percent of the irrigated land in California.

The social conditions in the IRC contractors' service area are described with factors such as employment level, educational opportunities, the income level, the community social structure,

and the need for public social assistance programs. These conditions were described in the PEIS and are summarized below.

The IRC contractors' service area is predominately rural with numerous small cities. Large communities, such as Fresno, San Jose, Tracy and Bakersfield, are also located in the vicinity of the CV Contractors service area. The regional economic indicators of social well being are all measures of the social conditions within a region. For the Tulare Lake Region, the unemployment rate is higher than in urban areas (Table 8), attributed to a large seasonal labor market and limited availability of employment in other industries. Unemployment for Fresno, Kern, and Tulare counties ranged from 12.1 to 15.6 percent in 1997 but decreased to 4.5 to 8.5 percent in 2006. Statewide unemployment was 6.3 percent in 1997 but dropped to 4.9 percent in 2006 (see Table 8). As the farming economy declines, the employment opportunities also decline.

Santa Clara County and the City of Tracy are an exception to the above and have a different socioeconomic setting than the other predominantly agricultural based contractors. Santa Clara County and Tracy have median household incomes above the state average, \$68,842 and \$62,794 respectively. The state-wide average is \$47,493. Santa Clara County has a highly educated workforce with over 40 percent of the population have a college education. Statewide less than 30 percent are college educated. The City of Tracy to a large extent is a bedroom community to the Bay Area and the high tech job market that exists there. Santa Clara County and the City of Tracy's economies are tied more to high tech markets than to the agricultural sector.

3.7.2 Environmental Consequences

No Action Alternative

Contract provisions under the No Action Alternative which stipulate the water pricing structure (80/10/10 tiered pricing) would place an additional financial burden on water contractors.

While contractors would likely receive the same quantity of water under the No Action Alternative, the tiered pricing structure stipulated in the contract would result in higher water prices for both agricultural and M&I contractors when second or third tier water is provided. The increased cost of water resulting from provisions under the No Action Alternative would increase the cost of water. Local and regional economies would be directly affected as a result of losses in farming revenues, decreased value of land dependent on water supplies increased costs to consumers of agricultural products or M&I water, and increased water conservation or measurement costs. It may also put additional pressures on low income households to pay for water supplies at higher rates. Although there is a potential for these effects to occur, considering the short duration of the 26 months of the contract renewal period, and the low frequency of allocations above 80 percent, no effects to socio-economic resources are expected over the scope of this project related to tiered pricing contract provisions.

Historic water deliveries and CVP facility operations would continue under the No Action Alternative. No changes in power generation, recreational opportunities, or agricultural economics are expected. Thus, no economic impacts are anticipated to occur under the period of renewal.

Proposed Action

Potential socio-economic impacts associated with the Proposed Action would be comparable to those described under No Action Alternative however under the Proposed Action there is no potential for effects to occur due to tiered pricing. Thus, renewal of the interim contracts with only minor administrative changes to the contract provisions would not result in a change in contract water quantities or a change in water use.

Cumulative Effects

Since there would be no effect of the Proposed Action, there would be no cumulative effects to socio-economic resources.

3.8 Environmental Justice

3.8.1 Affected Environment

Executive Order 12898, dated February 11, 1994, requires Federal agencies to ensure that their actions do not disproportionately impact minority and disadvantaged populations. Some information relating to the socio-economic stratification of the IRC contractors can be found above. The market for seasonal workers on local farms draws thousands of migrant workers, commonly of Hispanic origin from Mexico and Central America. The population of some small communities typically increases during late summer harvest.

3.8.2 Environmental Consequences

No Action Alternative

Contract provisions under the No Action Alternative include the tiered pricing structure (80/10/10 tiered pricing.) Implementation could, but is not likely to result in changes in agricultural practices, including cropping patterns and land fallowing. It would, however, during the circumstances when tiered pricing increased rates apply, increase the cost of water, which could reduce farming revenues and decrease land values. M&I users would also be impacted by changes in water supply costs placing increased pressure on low income households. Nevertheless, because this is a temporary action, and because the potential changes in water delivery and cost is expected to be within the normal range of variation, it is unlikely that significant changes in social well-being would occur under this alternative.

Reduced farming revenue and land values would be detrimental to farm workers, especially to migrant workers who tend to be from minority and low-income populations. This impact would be attenuated by the short duration of the interim renewal contracts and the low likelihood of major shifts in agricultural production in a 26-month period. Additionally tiered pricing impacts occur only when allocations are above 80 percent which occurs infrequently. Any changes would likely be within the normal range of annual or seasonal variations. No significant disproportionate impacts to minority or low-income populations are expected.

Factors contributing to population change, employment, and income levels and unemployment rates in the affected area are closely tied to CVP water contracts through either agricultural or M&I dependence. Because no changes in water supplies or CVP operations would occur under this alternative, changes in population and the various indicators of social well-being that would result are expected to be relatively minor.

The No Action Alternative would support continued agricultural production and would not result in changes to employment of minority and low-income populations.

Proposed Action

Impacts to minority and disadvantaged populations associated with the Proposed Action would be comparable to those described under No Action Alternative. Renewal of the IRCs with only minor administrative changes to the contract provisions would not result in a change in contract water quantities or a change in water use. The Proposed Action would not cause dislocation, changes in employment, or increase flood, drought, or disease. The Proposed Action would not disproportionately impact economically disadvantaged or minority populations. There would be no changes to existing conditions. Employment opportunities for low-income wage earners and minority population groups would be within historical conditions. Therefore, the Proposed Action would not differ from current conditions and would not be expected to disproportionately affect minority or low income populations.

Cumulative Effects

Since there would be no effect of the Proposed Action, there would be no cumulative effects to minority or disadvantaged populations.

Section 4 Consultation and Coordination

Fish and Wildlife Coordination Act (16 USC § 651 et seq.)

The Fish and Wildlife Coordination Act (FWCA) requires that Reclamation consult with fish and wildlife agencies (federal and state) on all water development projects that could affect biological resources. The implementation of the CVPIA, of which this action is a part, has been jointly analyzed by Reclamation and the FWS and is being jointly implemented. The Proposed Action does not involve construction projects. Therefore the FWCA does not apply.

Endangered Species Act (16 USC § 1521 et seq.)

Section 7 of the ESA requires federal agencies, in consultation with the Secretaries of Commerce and the Interior, to ensure that their actions do not jeopardize the continued existence of endangered or threatened species, or result in the destruction or adverse modification of the critical habitat of these species.

The Proposed Action would support existing uses and conditions. No native lands would be converted or cultivated with CVP water. The water would be delivered to existing homes or farmlands, through existing facilities, as has been done in the past, and would not be used for land conversion.

In 2000, Reclamation completed formal ESA consultation on IRCs, and the FWS issued a BO dated February 29, 2000. On February 28, 2001, the FWS issued a memorandum extending that 2000 BO through February of 2002. In February 2002, the FWS issued a BO amending the February 2000 BO, and extending the 2000 BO through February of 2004. On February 27, 2004, the FWS issued a second amendment to their February 2000 BO to address the effects of the 2004 interim renewal contracts through February 2006. The FWS issued a BO on February 28, 2006, that addressed the effects of two consecutive one-year interim renewal contracts, through February 28, 2007, and February 29, 2008 (Service File No. 1-1-06-F-0070). These BOs are attached as appendices to previous interim renewal EAs.

Reclamation has determined that there would be no effects to species and critical habitats under the jurisdiction of NMFS within the service areas. Effects to species and critical habitats under the jurisdiction of FWS within the service areas would be addressed in the BO issued by that agency to Reclamation before the interim contracts are signed. Reclamation will complete consultation with the FWS prior to finalization of this EA.

National Historic Preservation Act (15 USC § 470 et seq.)

Section 106 of the NHPA requires federal agencies to evaluate the effects of federal undertakings on historical, archaeological and cultural resources. Reclamation has made a determination that as the Proposed Action would result in no change in the amount of water, how the water is conveyed or applied to the ground and given the lack of any possible impacts as a result of the undertaking, Reclamation concludes that there is no potential to affect historic properties, pursuant to 36 CFR Part 800.3(a)(1). As described in the regulations, Reclamation has no further obligations under section 106.

Migratory Bird Treaty Act (16 USC § 703 et seq.)

The Migratory Bird Treaty Act implements various treaties and conventions between the U.S. and Canada, Japan, Mexico and the former Soviet Union for the protection of migratory birds. Unless permitted by regulations, the Act provides that it is unlawful to pursue, hunt, take, capture or kill; attempt to take, capture or kill; possess, offer to or sell, barter, purchase, deliver or cause to be shipped, exported, imported, transported, carried or received any migratory bird, part, nest, egg or product, manufactured or not. Subject to limitations in the Act, the Secretary of the Interior (Secretary) may adopt regulations determining the extent to which, if at all, hunting, taking, capturing, killing, possessing, selling, purchasing, shipping, transporting or exporting of any migratory bird, part, nest or egg will be allowed, having regard for temperature zones, distribution, abundance, economic value, breeding habits and migratory flight patterns.

The Proposed Action would have no effect on birds protected by the Migratory Bird Treaty Act.

Executive Order 11988 – Floodplain Management and Executive Order 11990-Protection of Wetlands

Executive Order 11988 requires Federal agencies to prepare floodplain assessments for actions located within or affecting flood plains, and similarly, Executive Order 11990 places similar requirements for actions in wetlands. The project would not affect either concern.

SECTION 5.0 List of Preparers and Reviewers

Judi Tapia, Natural Resource Specialist, SCCAO

Mike Kinsey, Biologist, SCCAO

Patti Clinton, Natural Resource Specialist, SCCAO

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DRAFT ENVIRONMENTAL ASSESSMENT

INTERIM RENEWAL CONTRACT EA

Appendix A
Draft Interim Renewal Contract

December 2007

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Contract No.

14-06-200-4305A-IR9-B

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF RECLAMATION
Central Valley Project, California

INTERIM RENEWAL CONTRACT BETWEEN THE UNITED STATES
AND
THE CITY OF TRACY
PROVIDING FOR PROJECT WATER SERVICE

THIS CONTRACT, made this _____ day of _____, 20____, in pursuance generally of the Act of June 17, 1902 (32 Stat. 388), and acts amendatory or supplementary thereto, including, but not limited to, the acts of August 26, 1937 (50 Stat. 844), as amended and supplemented, August 4, 1939 (53 Stat. 1187), as amended and supplemented, July 2, 1956 (70 Stat. 483), June 21, 1963 (77 Stat. 68), October 12, 1982 (96 Stat. 1263), as amended and Title XXXIV of the Act of October 30, 1992 (106 Stat. 4706), all collectively hereinafter referred to as Federal Reclamation law, between THE UNITED STATES OF AMERICA, hereinafter referred to as the United States, and THE CITY OF TRACY, hereinafter referred to as the Contractor, a public agency of the State of California, duly organized, existing, and acting pursuant to the laws thereof;

WITNESSETH, That:

EXPLANATORY RECITALS

WHEREAS, the United States and the Banta Carbona Irrigation District (District) entered into an interim renewal contract identified as Contract No. 14-06-200-4305A-IR5, hereinafter referred to as the Interim Renewal Contract, which provided for the continued water service to the District following expiration of Contract No. 14-06-200-4305A; and

WHEREAS, the United States and the District have entered into successive renewals of the Interim Renewal Contract, the most recent of which is Contract No. 14-06-200-4305A-IR8, hereinafter referred to as the Existing Interim Renewal Contract from March 1, 2004, through February 28, 2006; and

WHEREAS, on February 27, 2004, the Contractor and the District entered into an assignment that assigned 5,000 af of project water to the City of project water; and

WHEREAS, the United States and the Contractor have made significant progress in their negotiations of a long-term renewal contract, believe that further negotiations on the long-term renewal contract would be beneficial, and mutually commit to continue to negotiate to seek to reach agreement, but anticipate that the environmental documentation necessary for execution of any long-term renewal contract will be delayed until the summer of 2006 and may be delayed further for reasons beyond the control of the parties; and,

WHEREAS, the Contractor has requested a subsequent interim renewal contract pursuant to Subdivision (b)(1) of Article 2 of the Interim Renewal Contract and Article 1 of the Existing Interim Renewal Contract; and

WHEREAS, the United States has determined that the Contractor has to date fulfilled all of its obligations under the Existing Interim Renewal Contract; and

WHEREAS, the United States is willing to renew the Existing Interim Renewal Contract pursuant to the terms and conditions set forth below;

NOW, THEREFORE, in consideration of the mutual and dependent covenants herein contained, it is hereby mutually agreed by the parties hereto as follows:

INCORPORATION AND REVISION OF EXISTING INTERIM RENEWAL CONTRACT

1. The terms and conditions of the Existing Interim Renewal Contract are hereby incorporated by reference into this Contract with the same force and effect as if they were included in full text with the exception of Article 1 thereof, which is revised as follows:

(a) The first sentence in Subdivision (a) of Article 1 of the Existing Interim Renewal Contract is modified as follows: "This interim renewal contract shall be effective from March 1, 2006, and shall remain in effect through February 28, 2007, and thereafter will be renewed as described in Subdivision (a) of Article 2 of the Interim Renewal Contract if a long-term renewal contract has not been executed with an effective commencement date of March 1, 2007."

(b) Subdivision (b) of Article 1 of the Existing Interim Renewal Contract is amended by deleting the date "February 15, 2006," and replacing same with the date "February 15, 2007."

(c) Subdivision (c) of Article 1 of the Existing Interim Renewal Contract is amended by deleting the dates "February 1, 2006," "February 15, 2006," and "February 28, 2006," and replacing same with the dates "February 1, 2007," "February 15, 2007," and "February 28, 2007," respectively.

IN WITNESS WHEREOF, the parties hereto have executed this interim renewal contract as of the day and year first above written.

THE UNITED STATES OF AMERICA

By: _____
Regional Director, Mid-Pacific Region
Bureau of Reclamation

(SEAL)

THE CITY OF TRACY

By: _____
City Manager

Attest:

Secretary

(H:\pub440\Interim Renewal Contracts - Drafts, charts, etc.\2006-2007 IRC's\Tracy -4305A-B 12-mo
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INTERIM RENEWAL CONTRACT EA

Appendix B
Threatened and Endangered Species List

December 2007

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**Federal Endangered and Threatened Species that Occur in
or may be Affected by Projects in the Counties and/or
U.S.G.S. 7 1/2 Minute Quads you requested**

Document Number: 071130012744

Database Last Updated: August 16, 2007

Quad Lists

Listed Species

Invertebrates

- Branchinecta conservatio
 - Conservancy fairy shrimp (E)
- Branchinecta lynchi
 - Critical habitat, vernal pool fairy shrimp (X)
 - vernal pool fairy shrimp (T)
- Desmocerus californicus dimorphus
 - valley elderberry longhorn beetle (T)
- Euphydryas editha bayensis
 - bay checkerspot butterfly (T)
 - Critical habitat, bay checkerspot butterfly (X)
- Incisalia mossii bayensis
 - San Bruno elfin butterfly (E)
- Lepidurus packardi
 - Critical habitat, vernal pool tadpole shrimp (X)
 - vernal pool tadpole shrimp (E)

Fish

- Acipenser medirostris
 - green sturgeon (T) (NMFS)
- Eucyclogobius newberryi
 - tidewater goby (E)
- Hypomesus transpacificus
 - Critical habitat, delta smelt (X)
 - delta smelt (T)

- *Oncorhynchus kisutch*
 - coho salmon - central CA coast (E) (NMFS)
- *Oncorhynchus mykiss*
 - Central California Coastal steelhead (T) (NMFS)
 - Central Valley steelhead (T) (NMFS)
 - Critical habitat, Central California coastal steelhead (X) (NMFS)
 - Critical habitat, Central Valley steelhead (X) (NMFS)
 - South Central California steelhead (T) (NMFS)
- *Oncorhynchus tshawytscha*
 - Central Valley spring-run chinook salmon (T) (NMFS)
 - winter-run chinook salmon, Sacramento River (E) (NMFS)

Amphibians

- *Ambystoma californiense*
 - California tiger salamander, central population (T)
 - Critical habitat, CA tiger salamander, central population (X)
- *Rana aurora draytonii*
 - California red-legged frog (T)
 - Critical habitat, California red-legged frog (X)

Reptiles

- *Gambelia* (=Crotaphytus) *silae*
 - blunt-nosed leopard lizard (E)
- *Masticophis lateralis euryxanthus*
 - Alameda whipsnake [=striped racer] (T)
 - Critical habitat, Alameda whipsnake (X)
- *Thamnophis gigas*
 - giant garter snake (T)

Birds

- *Brachyramphus marmoratus*
 - Critical habitat, marbled murrelet (X)
 - marbled murrelet (T)
- *Charadrius alexandrinus nivosus*
 - western snowy plover (T)
- *Gymnogyps californianus*
 - California condor (E)

- *Rallus longirostris obsoletus*
 - California clapper rail (E)
- *Sternula antillarum* (=Sterna, =albifrons) browni
 - California least tern (E)
- *Vireo bellii pusillus*
 - Least Bell's vireo (E)

Mammals

- *Dipodomys ingens*
 - giant kangaroo rat (E)
- *Dipodomys nitratoides exilis*
 - Critical habitat, Fresno kangaroo rat (X)
 - Fresno kangaroo rat (E)
- *Dipodomys nitratoides nitratoides*
 - Tipton kangaroo rat (E)
- *Reithrodontomys raviventris*
 - salt marsh harvest mouse (E)
- *Vulpes macrotis mutica*
 - San Joaquin kit fox (E)

Plants

- *Amsinckia grandiflora*
 - large-flowered fiddleneck (E)
- *Castilleja affinis* ssp. neglecta
 - Tiburon paintbrush (E)
- *Castilleja campestris* ssp. succulenta
 - Critical habitat, succulent (=fleshy) owl's-clover (X)
 - succulent (=fleshy) owl's-clover (T)
- *Ceanothus ferrisiae*
 - Coyote ceanothus (E)
- *Chamaesyce hooveri*
 - Critical habitat, Hoover's spurge (X)
 - Hoover's spurge (T)
- *Clarkia springvillensis*
 - Springville clarkia (T)

- *Dudleya setchellii*
 - Santa Clara Valley dudleya (E)
- *Holocarpha macradenia*
 - Critical habitat, Santa Cruz tarplant (X)
 - Santa Cruz tarplant (T)
- *Lasthenia conjugens*
 - Contra Costa goldfields (E)
 - Critical habitat, Contra Costa goldfields (X)
- *Monolopia congdonii* (=Lembertia congdonii)
 - San Joaquin woolly-threads (E)
- *Opuntia treleasei*
 - Bakersfield cactus (E)
- *Orcuttia inaequalis*
 - Critical habitat, San Joaquin Valley Orcutt grass (X)
- *Pseudobahia bahiifolia*
 - Hartweg's golden sunburst (E)
- *Pseudobahia peirsonii*
 - San Joaquin adobe sunburst (T)
- *Streptanthus albidus* ssp. *albidus*
 - Metcalf Canyon jewelflower (E)
- *Suaeda californica*
 - California sea blite (E)

Candidate Species

Amphibians

- *Rana muscosa*
 - mountain yellow-legged frog (C)

Quads Containing Listed, Proposed or Candidate Species:

DEEPWELL RANCH (263A)

MCFARLAND (263B)

NORTH OF OILDALE (263D)

WASCO NW (264B)

DUCOR (287A)
SAUSALITO SCHOOL (287B)
DELANO EAST (287C)
RICHGROVE (287D)
PIXLEY (288A)
ALPAUGH (288B)
ALLENSWORTH (288C)
HACIENDA RANCH NE (289A)
HACIENDA RANCH (289D)
LINDSAY (310A)
CAIRNS CORNER (310B)
WOODVILLE (310C)
PORTERVILLE (310D)
TULARE (311A)
TAYLOR WEIR (311C)
TIPTON (311D)
CORCORAN (312D)
WESTHAVEN (313B)
AVENAL (314C)
COALINGA (315A)
SLACK CANYON (316C)
IVANHOE (333B)
EXETER (333C)
GOSHEN (334C)

VISALIA (334D)
VANGUARD (336C)
FIVE POINTS (337A)
TRES PECOS FARMS (338A)
DOMENGINE RANCH (338D)
STOKES MTN. (355C)
ORANGE COVE NORTH (356A)
WAHTOKE (356B)
SAN JOAQUIN (359C)
HELM (359D)
COIT RANCH (360B)
MONOCLINE RIDGE (361D)
FRIANT (378B)
FIREBAUGH (381C)
BROADVIEW FARMS (382D)
MARIPOSA PEAK (384B)
THREE SISTERS (385A)
SAN FELIPE (385B)
CHITTENDEN (386A)
WATSONVILLE EAST (386B)
CREVISON PEAK (404B)
PACHECO PASS (404C)
MUSTANG PEAK (405A)
MISSISSIPPI CREEK (405B)

GILROY HOT SPRINGS (405C)
PACHECO PEAK (405D)
MT. SIZER (406A)
MORGAN HILL (406B)
MT. MADONNA (406C)
GILROY (406D)
SANTA TERESA HILLS (407A)
LOS GATOS (407B)
LAUREL (407C)
LOMA PRIETA (407D)
CASTLE ROCK RIDGE (408A)
MT. BOARDMAN (425B)
MT. STAKES (425C)
EYLAR MTN (426A)
MT. DAY (426B)
LICK OBSERVATORY (426C)
ISABEL VALLEY (426D)
CALAVERAS RESERVOIR (427A)
MILPITAS (427B)
SAN JOSE WEST (427C)
SAN JOSE EAST (427D)
MOUNTAIN VIEW (428A)
PALO ALTO (428B)
CUPERTINO (428D)

TRACY (444B)

UNION ISLAND (462C)

Key:

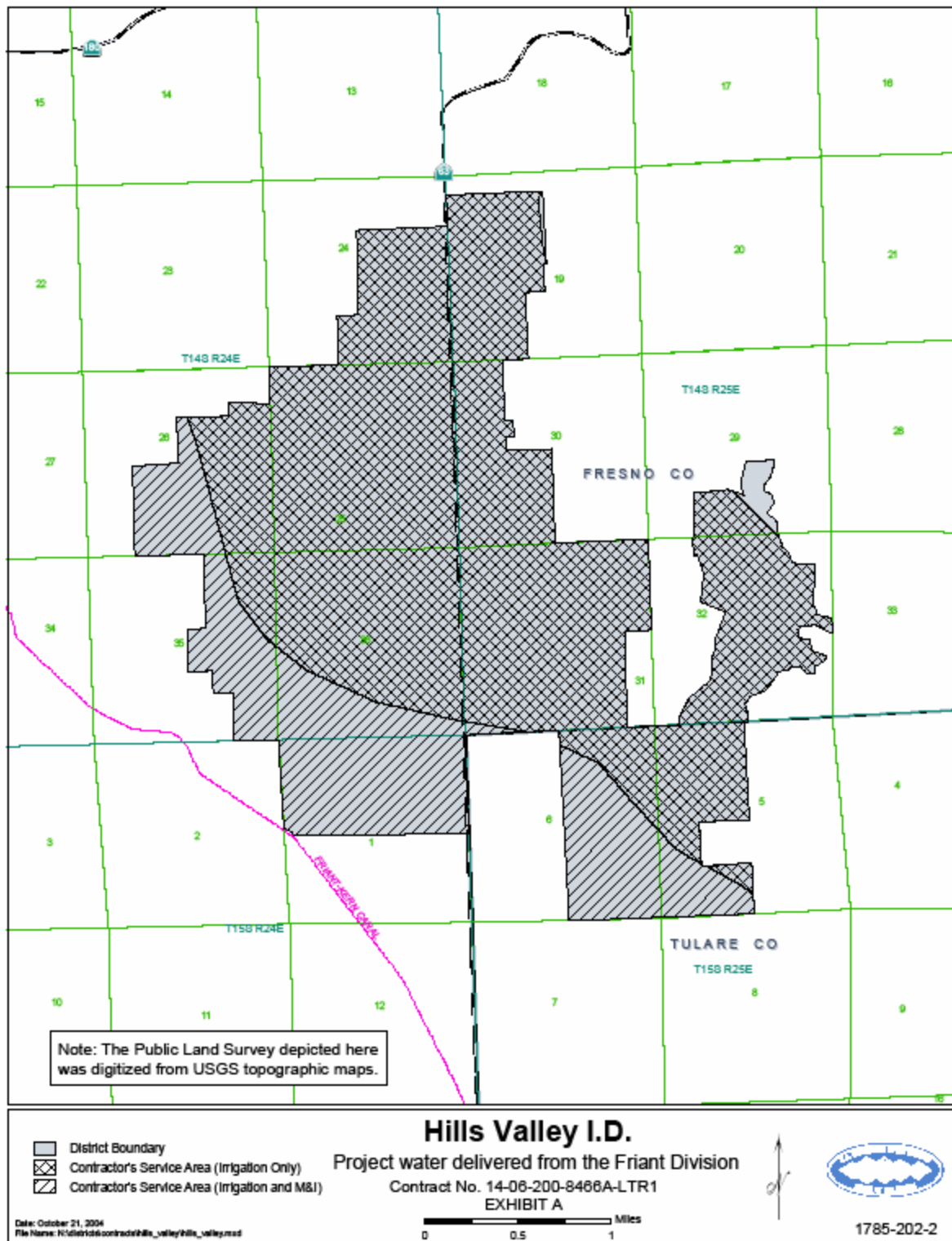
- (E) Endangered - Listed as being in danger of extinction.
- (T) Threatened - Listed as likely to become endangered within the foreseeable future.
- (P) Proposed - Officially proposed in the Federal Register for listing as endangered or threatened.
- (NMFS) Species under the Jurisdiction of the [National Oceanic & Atmospheric Administration Fisheries Service](#). Consult with them directly about these species.
- Critical Habitat - Area essential to the conservation of a species.
- (PX) Proposed Critical Habitat - The species is already listed. Critical habitat is being proposed for it.
- (C) Candidate - Candidate to become a proposed species.
- (V) Vacated by a court order. Not currently in effect. Being reviewed by the Service.
- (X) Critical Habitat designated for this species

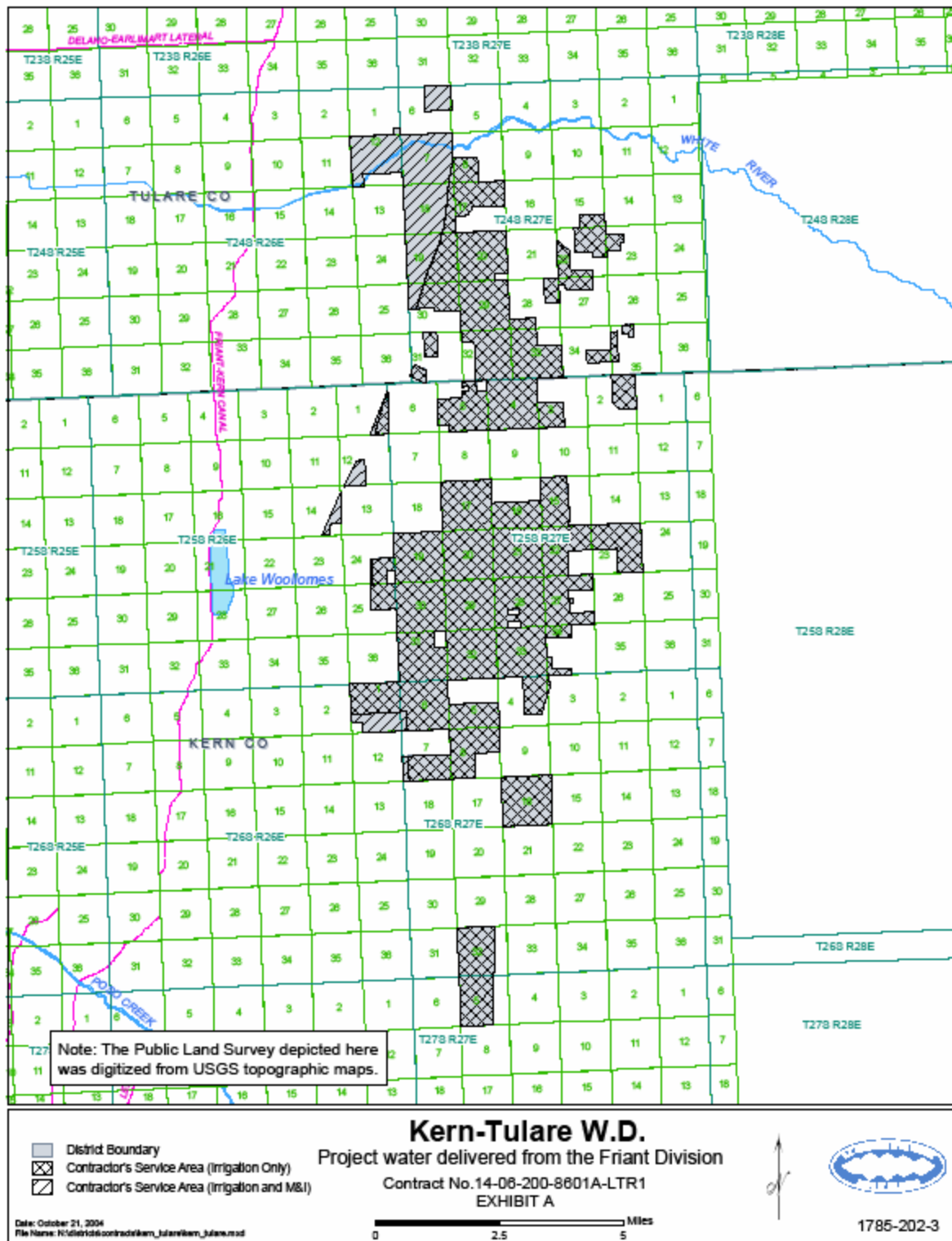
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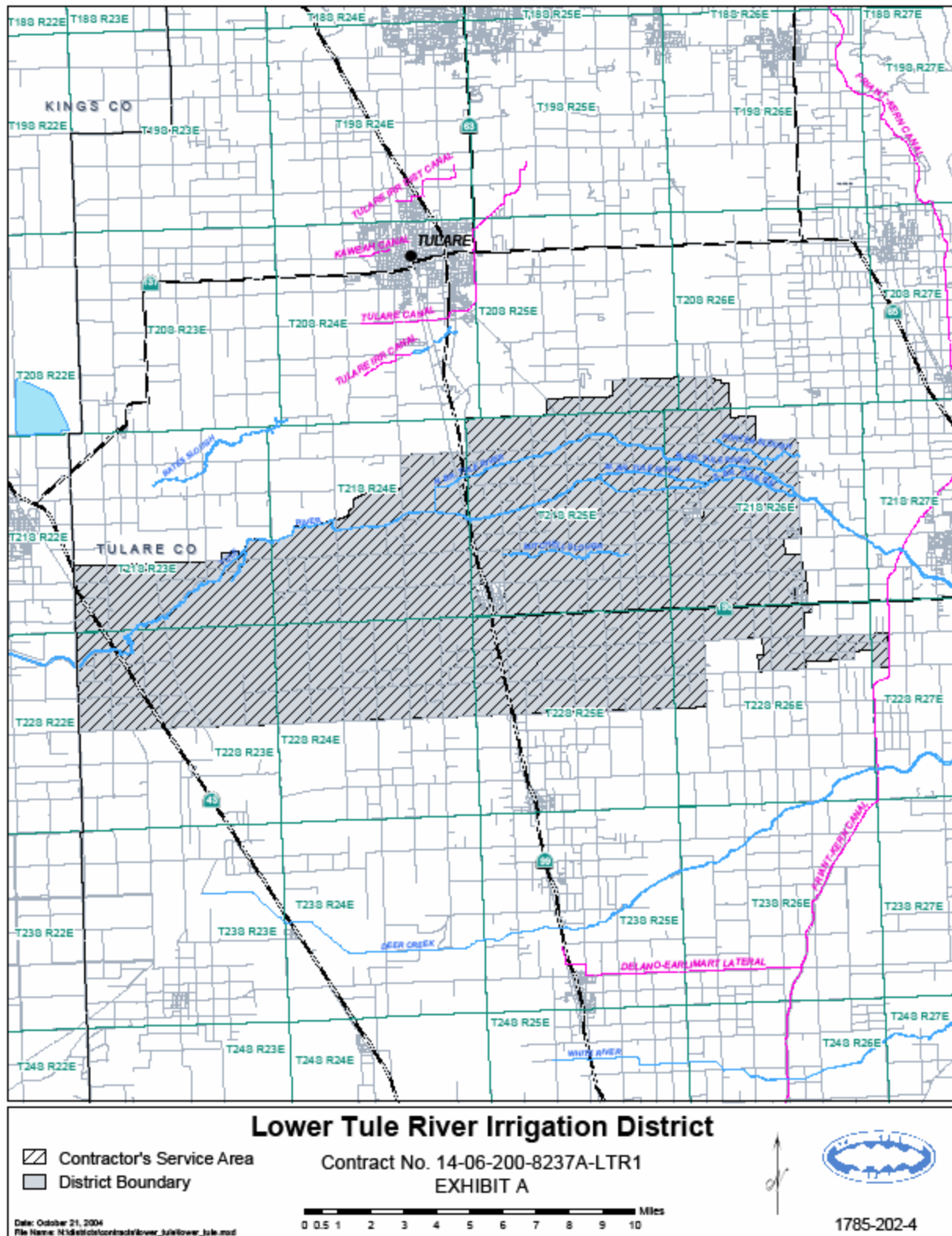
INTERIM RENEWAL CONTRACT EA

Appendix C
Individual Service Area Boundary Maps

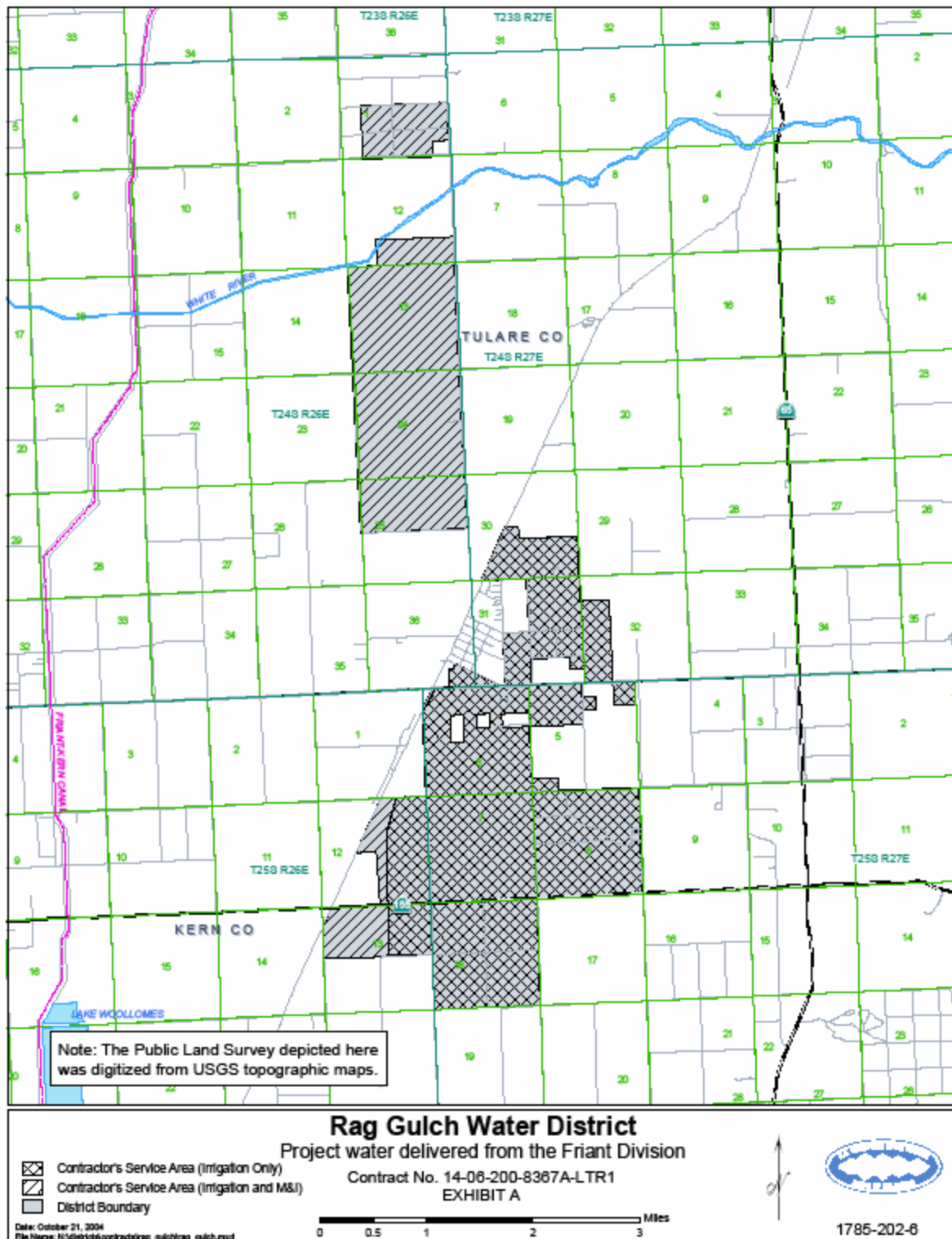
December 2007

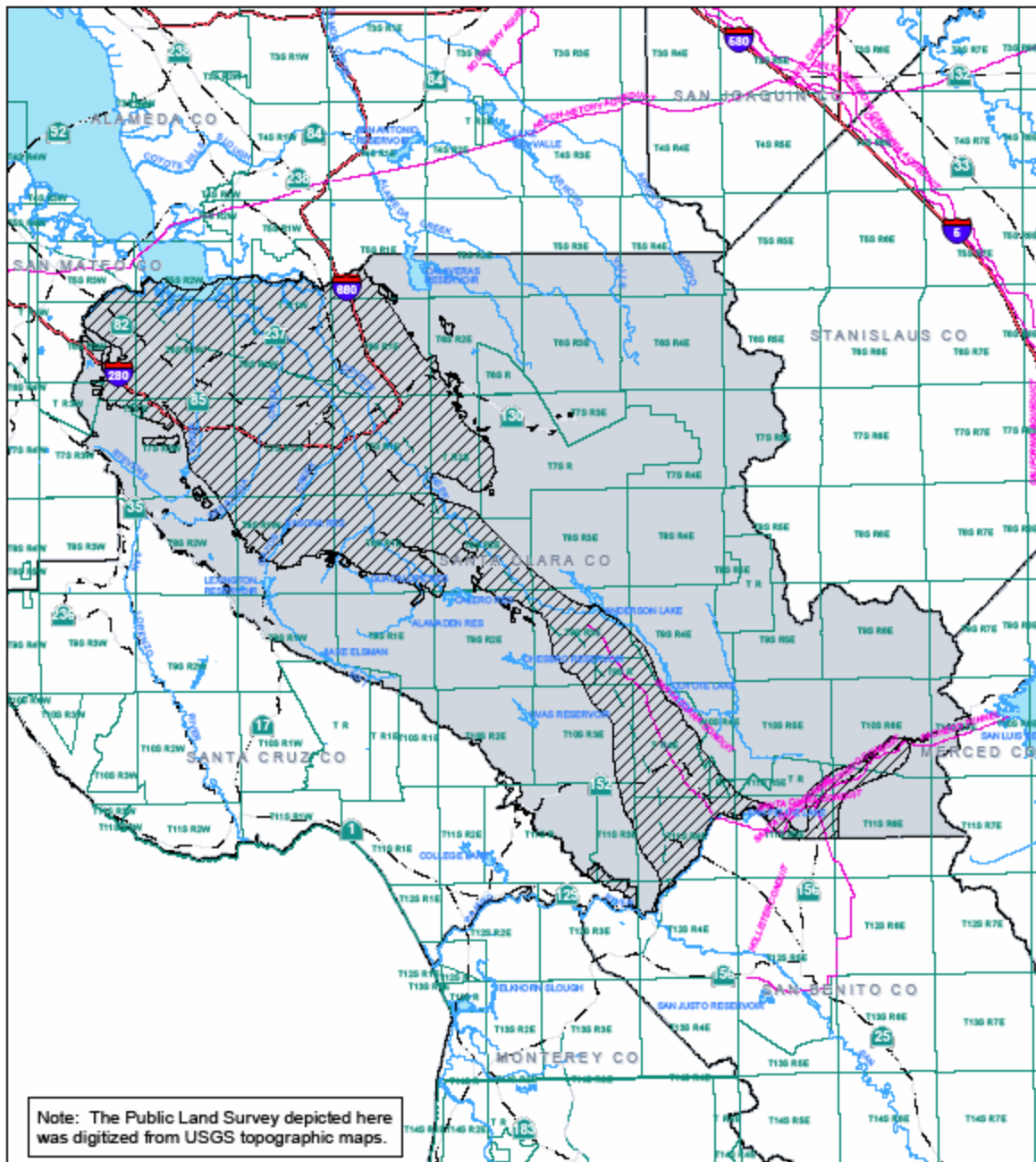












Santa Clara Valley W.D.
 Contract No. 7-07-20-W0023-LTR1
 Exhibit A

Contractor's Service Area

District Boundary

0 5 10 20 Miles

921-202-1

Date: October 19, 2004
 File Name: H:\chris\info\contract\7-07-20\w0023_santa_clara.mxd

